



Homestake Mining Company of California
560 Anaconda Road, Route 605 North
Milan, New Mexico 87021

September 6, 2019

Mr. Mark Purcell
Superfund Division (6SF)
U.S. Environmental Protection Agency - Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

Re: Grants Reclamation Project
Arcadis Review of 2006 Background Evaluation

Dear Mark,

Homestake hereby submits the Arcadis U.S., Inc. Review of 2006 Background Evaluation Completed by Homestake Mining Company of California, Environmental Resources Group, and Hydro-Engineering for the Grants Reclamation Project, Grants, New Mexico.

If you have questions or comments, please contact me at (775) 397-7215 or dlattin@barrick.com.

Respectfully,

Daniel Lattin, P.E.
Project Evaluation Manager
Homestake Mining Company of California

MEMO

To:

Daniel Lattin
Barrick Gold of North America, Inc.

Arcadis U.S., Inc.
6723 Towpath Road
P.O. Box 66
Syracuse
New York 13214-0066
Tel 315 446 9120
Fax 315 449 0017

From:

Shannon Ulrich
Jeffrey Gillow (Geosyntec)
Matt Butcher

Date:

September 5, 2019

Arcadis Project No.:

30008273

Subject:

Review of 2006 Background Evaluation Completed by
Homestake Mining Company of California (HMC),
Environmental Resources Group, and Hydro-Engineering for the
HMC Grants Reclamation Project, Grants, New Mexico

This memorandum summarizes findings of a technical review regarding Groundwater Protection Standards (GWPSs) described in *Correspondence from Alan D. Cox (HMC) to Paul Michalak (U.S. Nuclear Regulatory Commission) Re: Grants Millsite Reclamation Project – SUA-1 471 – Docket No. 40-8903 Tracking number – TAC LU0014 Aquifer Site Standards dated January 19, 2006 (ADAMS Accession No. ML060250273)* and later approved in *Correspondence from Gary Janosko (U.S. Nuclear Regulatory Commission) to Alan D. Cox (HMC) Re: Grants, New Mexico – License Amendment No. 39 to Materials License No. SUA-1471 (TAC LU0122) dated July 10, 2006 (ADAMS Accession No. ML061710354)*.

The purpose of the review was to assess whether statistical analyses used to establish background concentrations for five groundwater zones (Alluvial Aquifer, Chinle Mixing Zone, and Lower, Upper, and Middle Chinle Non-Mixing Zones) were appropriate and consistent with up-to-date software tools, methods, and guidance. Constituents for which site-specific background standards were calculated included uranium, molybdenum, sulfate, chloride, total dissolved solids (TDS), and nitrate.

The technical review was completed in four parts:

1. Determine whether methods for outlier detection and treatment of nondetect values were appropriate.

2. Confirm distribution testing correctly identified datasets as normally or otherwise distributed or nonparametric.
3. Recalculate statistically based GWPS values using an independent software package, consistent with up-to-date United States Environmental Protection Agency (USEPA) guidance.
4. Compare GWPS values to the original calculations described in HMC's January 19, 2006 correspondence (HMC 2006) and elsewhere.

Results of the technical review are discussed in the remainder of this memorandum. Supporting tables, figures, raw data, and statistical calculations are attached.

BACKGROUND

Background assessments have been completed for the Grants Reclamation Site in Grants, New Mexico (Site) to establish GWPSs for select constituents in groundwater. In 2006, HMC developed GWPS values for five groundwater zones (Alluvial Aquifer, Chinle Mixing Zone, and Lower, Upper, and Middle Chinle Non-Mixing Zones) and ten constituents (selenium, uranium, molybdenum, sulfate, chloride, TDS, nitrate, vanadium, thorium-230, and the sum of radium-226 and radium-228). The GWPS was set based on either a statistically derived site-specific background value, an alternate federal protection standard, or another agreed-upon value (Table 1). GWPS values were subsequently approved by the Nuclear Regulatory Commission (NRC 2006) and USEPA and New Mexico Environment Department (USEPA 2006a).

The GWPS for each constituent in each zone is shown in Table 1. The table highlights the GWPS values that were based on a statistical evaluation: selenium, uranium, molybdenum, sulfate, chloride, TDS, and nitrate. It should be noted that GWPS values were established over time with rationale provided in separate reports and correspondences. In most cases, more than 60 discrete samples were collected across multiple wells in each groundwater zone over a more than 10-year span; often more than 100 samples were available and used in GWPS calculations. Table 2 summarizes the rationale for each GWPS and cites the source report where further information can be obtained.

The primary sources of information regarding the GWPS values include:

- 1989 – Nuclear Regulatory Commission memorandum titled “Establishment of Ground-water Protection Standards” (NRC 1989)
- 2001 – Hydro-Engineering report titled “Ground-Water Hydrology for Support of Background Concentrations at the Grants Reclamation Site” (Hydro-Engineering 2001)
- 2003 – Environmental Resources Group (ERG) report titled “Statistical Evaluation of Chinle Aquifer Quality at the Homestake Site near Grants, NM” (ERG 2003)
- 2005 – Correspondence from Alan D. Cox (HMC) to Gary Janosko (U.S. Nuclear Regulatory Commission) Re: Grants Millsite Reclamation Project (HMC 2005a)
- 2005 – Correspondence from Alan D. Cox (HMC) to Jerry Schoeppner (NMED) Re: Grants reclamation project Homestake response to NMED 1/20/05 comments on proposed ground water background concentrations for HMC Grants Millsite (HMC 2005b)
- 2006 – NRC License Amendment Technical Evaluation Report, Request to Amend License SUA-1471 Condition 35 (HMC 2006)
- 2006 – License Amendment No. 39 to Materials License No. SUA-1471 (TAC LU0122) (NRC 2006)

METHODS

Additional software tools and calculation methods have been developed since GWPS values were established in 2006. These tools include USEPA's ProUCL software, version 5.1 (USEPA 2015), which provides alternate methods for handling censored datasets (i.e., datasets that contain nondetects) or datasets that do not conform to a normal distribution, and calculates upper tolerance limits (UTLs) based on alternate data distributions such as gamma distributions when applicable.

Dataset Definition

Data used in previous assessments were provided to Arcadis by ERG on August 12, 2016.¹ The wells used to derive GWPS values for each zone are listed in Table 3. Data from nine wells were used to derive GWPS values for the Alluvial Aquifer, 13 wells for the Chinle Mixing Zone, five wells for the Upper Chinle Non-Mixing Zone, six wells for the Middle Chinle Non-Mixing Zone, and six wells for the Lower Chinle Non-Mixing Zone.

Descriptive statistics for the aquifer units in the data provided by ERG were cross-checked with those reported in ERG's background assessment (ERG 2003). Descriptive statistics agreed with the ERG report and outliers identified in the background assessment were confirmed to be removed from the data provided by ERG. Raw data used in the statistical review of GWPS values are included in Attachment 1.

Treatment of Nondetects

Left-censored datasets (i.e., datasets with values reported at a detection limit or other reporting limit, i.e., nondetects) can introduce uncertainty into statistical analyses – including goodness-of-fit testing, outlier testing, and UTL estimation – particularly for datasets that contain more than 15% nondetect values. Arcadis reviewed the treatment of nondetects in the HMC (2006) background assessment compared to current recommended tools and methodology. In HMC's assessment, if the frequency of nondetects was less than 15%, the nondetect was replaced by the detection limit divided by two (referred to as "DL/2"). A parametric distribution analysis was then performed on the modified dataset. If the percentage of nondetects was greater than 15%, the distribution was considered nonparametric and a distribution analysis was not performed.

An alternative to the DL/2 substitution approach involves using Kaplan-Meier (KM) methods available in USEPA's ProUCL 5.1 (USEPA 2015) software. Arcadis evaluated the significance of the DL/2 substitution for nondetects used by HMC to determine if it could significantly influence data distribution test results and UTL calculations. For many datasets, the percentage of nondetects is greater than 15%; therefore, Arcadis performed data distribution tests and UTL calculations first using the DL/2 method (consistent with the HMC 2006 background report) and then using KM methods in ProUCL, and compared the results as discussed later in this memorandum.

Outlier Identification

"The Unified Guidance recommends that testing of outliers be performed on background data, but they generally not be removed unless some basis for a likely error or discrepancy can be identified. ... strategies that involve automated evaluation and removal of outliers may unwittingly eliminate the evidence of real and important changes to background conditions." (USEPA 2009)

¹ Electronic file transfer from Chuck Farr (ERG) to Timothy Negley (Arcadis). August 12, 2016.

Outlier tests can be conducted through many methods and identify values that are statistically inconsistent with an overall data distribution. An outlier may represent an erroneous measurement; however it may also represent a true value from a variable dataset (USEPA 2006b, 2009). It is important that an assessment does not exclude observations that truly represent the population of interest.

The previous work by ERG used an *a priori* screening test to eliminate outliers before the distribution analysis was performed (ERG 2003). The *a priori* test was applied to all data. An observation that was four or five times as large as the rest of the data was generally considered suspect (USEPA 2009). Conservatively, for this *a priori* test, outliers were defined as values (concentrations) greater than three times the next highest value (NRC 2006). If a data value failed the *a priori* test, it was removed from the dataset for subsequent statistical analyses.

Based on our review, Arcadis concurs that the *a priori* test is suitable and sufficient to identify the most extreme values in a dataset as potential outliers.

Box Plots

Arcadis constructed box-and-whisker plots (or boxplots) for each constituent in each groundwater zone (Attachment 2-6). A boxplot shows the 25th, 50th (median), and 75th percentiles, spread of the data, and extreme values. When data from multiple sampling areas or locations are presented side-by-side for the same constituent, this graphic can be used to determine if within-strata and between-strata locations are representative of the same background population. Boxplots can also be used to identify potential outliers based on their distance from the middle 50 percent of the data, as defined by the ends of the “box” in the following manner: based on the product of the interquartile range ($IQR = 75^{th} - 25^{th}$ percentiles) and a multiplier (usually 1.5 or 3.0) added to the 75th percentile. Commonly, values that exceed the 75th percentile plus 1.5 times the IQR are considered moderate outliers, whereas values that exceed the 75th percentile plus 3.0 times the IQR are extreme outliers.

Data Distribution Testing

Data distribution testing is necessary to determine whether a statistically based background value can be derived using parametric or nonparametric methods. HMC (2006) utilized multiple lines of evidence to determine if a dataset was from a normal, lognormal, or gamma distribution, or should be treated as a nonparametric distribution. Methods to determine the distribution of the data included probability plots and a Shapiro-Wilk ($n < 50$) or Shapiro-Francia ($n > 50$) test, among others. Arcadis agrees with this approach, and the use of Shapiro-Wilk for datasets less than 50 and Shapiro-Francia for datasets greater than 50 is consistent with Unified Guidance (USEPA 2009). It should be noted that USEPA’s ProUCL software uses the Shapiro-Wilk for datasets up to $n = 2,000$ and the Lilliefors test statistic, which also performs well for samples sizes of 50 or more (USEPA 2015). Additionally, USEPA (2015) provides methods for calculating UTLs for data that fit a gamma distribution.

Arcadis reviewed the data distribution testing in the HMC (2006) background assessment compared to current recommended tools and methodology. Arcadis repeated the data distribution testing using methods currently available in ProUCL 5.1, including the Shapiro-Wilk test and Lilliefors test statistic for normal/lognormal datasets, and the Kolmogorov Smirnov (KS) test for gamma distributed datasets. Data that did not pass any of these three tests were considered to be from a nonparametric distribution. Distribution testing results were compared to distribution results reported in HMC 2006 and were used in the UTL recalculation discussed below.

Upper Tolerance Limit Recalculation

Background threshold values (BTVs) for groundwater monitoring and compliance assessment are often represented by a one-sided UTL or an upper prediction limit (UPL) for the background population. Tolerance limits provide an interval within which at least a certain proportion of the population lies, with a specified probability that the stated interval does indeed “contain” that proportion of the population (USEPA 2006b, 2009). A 95/95 UTL indicates that 95% of the population is contained within the limit with 95% confidence. It should be noted that even within the background dataset, 5 percent of the dataset could be expected to exceed the UTL simply due to random chance. A typical decision tree for setting a BTV is provided in Table 4. The decision tree for selecting a UTL to represent the BTV is included in Table 5.

According to USEPA’s Unified Guidance, “*The UTL is an appropriate statistic when the intent is to compare data from unimpacted wells with data from potentially impacted wells*” (Section 5 of USEPA 2009). As such, Arcadis reviewed the UTL calculations in the HMC (2006) background assessment and recalculated based on current recommended tools and methodology. Arcadis calculated UTLs considering the following items based on current methodologies and tools for calculating background values:

- Use of KM methods for nondetects (in place of DL/2 substitution)
- Influence of potential outliers identified using the IQR test
- Use of Shapiro-Wilk and Lilliefors test statistics for all datasets to test normality/lognormality
- Use of KS test statistic to identify gamma distributed datasets
- Calculation of gamma UTL for gamma distributed datasets

RESULTS AND DISCUSSION

Data Robustness

An overview of each dataset evaluated is shown as a boxplot provided as figures in Attachment 2 (Alluvial Aquifer), Attachment 3 (Chinle Mixing Zone), Attachment 4 (Upper Chinle Non-Mixing Zone), Attachment 5 (Middle Chinle Non-Mixing Zone), and Attachment 6 (Lower Chinle Non-Mixing Zone). Summary statistics for each well and for the pooled dataset are also shown below each plot. Figure numbers correspond to the attachment number and sequential figures contained therein (e.g., Figure 2.1 is the first figure in Attachment 2).

The boxplots illustrate that the datasets cover a range of variability both vertically by groundwater zones and horizontally across the Site. In addition, in most cases, more than 60 discrete samples were collected across multiple wells in each groundwater zone over a more than 10-year span; often more than 100 samples were available and used in GWPS calculations. Based on Arcadis’ experience, the number of wells, samples, and duration of time covered by the dataset available is considerably robust compared to similar sites.

Upper Tolerance Limits

Arcadis agrees that a UTL is an appropriate statistic to use for setting GWPS values since it is the recommended method for comparison to background in USEPA guidance (USEPA 2009, 2015). A UTL bounds an upper percentile (e.g., 95th) of the distribution of background samples with a certain confidence (e.g., 95%); it may be compared to individual observations to determine if they are unlikely to be from the

background distribution of concentrations. Results of the data distribution testing and UTL recalculation are shown in Table 6 and Attachment 7. Data distribution testing confirmed data distributions reported in the 2006 assessment, except for five cases described below. These differences had slight impacts on the UTL:

- Molybdenum in the Chinle Mixing Zone was previously determined to be nonparametric, but ProUCL 5.1 determined the dataset to be normally distributed. Therefore, a normal UTL was calculated. The updated UTL decreased from 0.1 milligram per liter (mg/L) to 0.09 mg/L.
- TDS in the Middle Chinle Non-Mixing Zone was previously determined to be nonparametric, but ProUCL 5.1 determined the dataset to be normally distributed. Therefore, a normal UTL was calculated. The updated UTL increased from 1,560 mg/L to 1,688 mg/L.
- Sulfate in the Chinle Mixing Zone was previously determined to be nonparametric, but ProUCL 5.1 determined the dataset to be gamma distributed. Therefore, a gamma UTL was calculated. The resulting UTL increased from 1,750 mg/L to 1,995 mg/L.
- Sulfate in the Upper Chinle Non-Mixing Zone was previously determined to be normally distributed and confirmed as normally distributed by ProUCL 5.1. Therefore, a normal UTL was calculated. The updated UTL decreased from 914 mg/L to 904 mg/L. It appears that the previous UTL used a k factor of 1.975 to calculate a UTL rather than the k factor of 1.855 used in ProUCL 5.1. (Note, that the ProUCL 5.1 k value is consistent with the k value of 1.857 in Table 2.4 of Owen (1963) for n = 167 and 95% coverage.)
- Nitrate in the Chinle Mixing Zone was identified as nonparametric previously but was determined to be gamma distributed by ProUCL 5.1. The resulting UTL increased from 15.3 mg/L to 20.6 mg/L.

In general, recalculation of the parametric UTLs and the nonparametric 95th percentiles by ProUCL 5.1 resulted in slight increases from previous calculations.

SUMMARY AND RECOMMENDATIONS

The purpose of the review was to assess whether statistical analyses used to establish background concentrations for five groundwater zones (Alluvial, Chinle Mixing Zone, and Lower, Upper, and Middle Chinle Non-Mixing Zones) were appropriate and consistent with up-to-date software tools, methods, and guidance. Constituents included selenium, uranium, molybdenum, sulfate, chloride, TDS, and nitrate. The review focused on four main components: 1) determine whether methods for outlier detection and treatment of nondetect values were appropriate, 2) confirm that distribution testing correctly identified datasets as normally distributed or nonparametric, 3) recalculate statistically based GWPS values using USEPA's ProUCL version 5.1 software, and 4) compare GWPS values to the original calculations described in HMC 2006 and elsewhere.

The review resulted in several key findings:

- The dataset used to establish statistically based GWPS values is considerably robust with often more than 100 samples used in calculations across more than 10 years of sample collection.
- Outlier screening using the *a priori* test to establish GWPS values is reasonable for detecting the most extreme values.
- Data distributions were confirmed to be the same as previously reported except for the following: Molybdenum in the Chinle Mixing Zone and TDS in the Middle Chinle Non-Mixing Zone were

previously treated as nonparametric but were determined by ProUCL 5.1 to be normally distributed. Sulfate and nitrate in the Chinle Mixing Zone were previously treated as nonparametric but were determined by ProUCL 5.1 to be gamma distributed. Arcadis recommends using both Shapiro-Wilk and Lilliefors test statistics for normal datasets and the KS test statistic to identify gamma distributed datasets.

- Recalculated UTLs increased by 1.0% to 41.2%, except for two cases where UTLs decreased by 1.1% and 11.1% (sulfate in the Upper Chinle Non-Mixing Zone and molybdenum in the Chinle Mixing Zone, respectively).

In summary, the previous statistical background assessments completed on behalf of HMC for establishing GWPS values appear robust. An assessment of updated methods revealed that the previously calculated UTLs would experience only minor adjustments, including slightly increased GWPS values in all but two cases.

REFERENCES

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- United States Environmental Protection Agency. 2015. ProUCL Version 5.1.002 Technical guide: statistical software for environmental applications for data sets with and without nondetect observations. EPA/600/R-07/041. October 2015.

Table 1 Grants Reclamation Project Groundwater Protection Standards

Constituents ^a	Alluvial	Chinle Mixing Zone	Upper Chinle Non-Mixing Zone	Middle Chinle Non-Mixing Zone	Lower Chinle Non-Mixing Zone
Selenium (mg/L)	0.32	0.14	0.06	0.07	0.32
Uranium (mg/L)	0.16	0.18	0.09	0.07	0.03 ^b
Molybdenum (mg/L)	0.1 ^b	0.1	0.1 ^b	0.1 ^b	0.1 ^b
Sulfate (mg/L)	1,500	1,750	914	857	2,000
Chloride (mg/L)	250 ^b	250 ^b	412	250 ^b	634
TDS (mg/L)	2,734	3,140	2,010	1,560	4,140
Nitrate (mg/L)	12	15	*	*	*
Vanadium (mg/L)	0.02 ^b	0.01 ^b	0.01 ^b	*	*
Thorium-230 (pCi/L)	0.3	*	*	*	*
Ra-226 + Ra-228 (pCi/L)	5	*	*	*	*

Notes:

^a **Bold shaded** values indicate GWPS was based on a site-specific statistically based value.

^b GWPS based on non-statistical value.

* Site standards were not proposed for the constituents in the indicated aquifer.

Abbreviations:

GWPS = groundwater protection standard

mg/L = milligram per liter

pCi/L = picoCurie per liter

Ra-226 + Ra-228 = radium-226 and radium-228

TDS = total dissolved solids

Table 2 Rationale for Each Groundwater Protection Standard

Zone	Analyte	GWPS ^a	Source of GWPS value	Citation
Alluvial Aquifer	Selenium (mg/L)	0.32	95th percentile (1995 – 2004)	HMC (2005a)
	Uranium (mg/L)	0.16	95th percentile (1995 – 2004)	HMC (2005a)
	Molybdenum (mg/L)	0.1	USEPA established value as protective of human health and the environment for groundwater at Title I sites. See 40 CFR Part 192, Subpart A, Table 1.	HMC (2005b)
	Sulfate (mg/L)	1500	95th percentile (1995 – 2004)	HMC (2005a)
	Chloride (mg/L)	250	Federal secondary drinking water standard	HMC (2005b)
	TDS (mg/L)	2734	95th percentile (1995 – 2004)	HMC (2005a)
	Nitrate (mg/L)	12	95th percentile (1995 – 2004)	HMC (2005a)
	Vanadium (mg/L)	0.02	Same as originally approved by NRC in 1989	HMC (2005b)
	Thorium-230 (pCi/L)	0.3	Same as originally approved by NRC in 1989	HMC (2005b)
	Ra-226+Ra-228 (pCi/L)	5	Same as originally approved by NRC in 1989	HMC (2005b)
Chinle Mixing Zone	Selenium (mg/L)	0.14	Nonparametric 95th percentile	ERG (2003)
	Uranium (mg/L)	0.18	Nonparametric 95th percentile	ERG (2003)
	Molybdenum (mg/L)	0.1	Nonparametric 95th percentile	ERG (2003)
	Sulfate (mg/L)	1750	Nonparametric 95th percentile	ERG (2003)
	Chloride (mg/L)	250	Federal secondary drinking water standard	HMC (2005b)
	TDS (mg/L)	3140	Nonparametric 95th percentile	ERG (2003)
	Nitrate (mg/L)	15	Nonparametric 95th percentile	ERG (2003)
	Vanadium (mg/L)	0.01	It appears to be the lower reporting limit (all samples were nondetect) from ERG 2003 (not confirmed).	ERG (2003)
	Thorium-230 (pCi/L)	--	Site standards are not proposed for thorium-230, radium-226 plus radium-228, and molybdenum for the Chinle Mixing Zone based on criteria (i) and (ii) that NRC has established for excluding detected constituents in 10 CFR Part 40 Appendix A - Criterion 5B(3)(a).	HMC (2005b)
	Ra-226+Ra-228 (pCi/L)	--		

Table 2 Rationale for Each Ground Water Protection Standard (Continued)

Zone	Analyte	GWPS ^a	Source	Citation
Upper Chinle Non-Mixing Zone	Selenium (mg/L)	0.06	Nonparametric 95th percentile	ERG (2003)
	Uranium (mg/L)	0.09	Nonparametric 95th percentile	ERG (2003)
	Molybdenum (mg/L)	0.1	Site standards were not proposed for molybdenum, thorium-230, radium-226 plus radium-228, and nitrate for the Upper Chinle Non-Mixing Zone based on the exclusions provided in 10 CFR Part 40 Appendix A - Criterion 5B(3)(a)(i) and (ii). In 2006, NRC stated to use 0.1 for molybdenum in all Chinle zones.	HMC (2005b) HMC (2006)
	Sulfate (mg/L)	914	Nonparametric 95th percentile	ERG (2003)
	Chloride (mg/L)	412	Nonparametric 95th percentile	ERG (2003)
	TDS (mg/L)	2010	Nonparametric 95th percentile	ERG (2003)
	Nitrate (mg/L)	----	Site standards are not proposed for molybdenum, thorium-230, radium-226 plus radium-228, and nitrate for the Upper Chinle Non-Mixing Zone based on the exclusions provided in 10 CFR Part 40 Appendix A - Criterion 5B(3)(a)(i) and (ii).	HMC (2005b)
	Vanadium (mg/L)	0.01	It appears to be the lower reporting limit (all samples were nondetect) from ERG 2003 (not confirmed).	ERG (2003)
	Thorium-230 (pCi/L)	----	Site standards are not proposed for molybdenum, thorium-230, radium-226 plus radium-228, and nitrate for the Upper Chinle Non-Mixing Zone based on the exclusions provided in 10 CFR Part 40 Appendix A - Criterion 5B(3)(a)(i) and (ii).	HMC (2005b)
	Ra-226+Ra-228 (pCi/L)	----		
Middle Chinle Non-Mixing Zone	Selenium (mg/L)	0.07	Nonparametric 95th percentile	ERG (2003)
	Uranium (mg/L)	0.07	Nonparametric 95th percentile	ERG (2003)
	Molybdenum (mg/L)	0.1	Site standards were not proposed for molybdenum, nitrate, vanadium, thorium-230, and radium-226 plus radium-228 for the Middle Chinle Non-Mixing Zone based on the exclusions provided in 10 CFR Part 40 Appendix A - Criterion 5B(3)(a)(i) and (ii). In 2006, NRC stated to use 0.1 for molybdenum in all Chinle zones.	HMC (2005b) HMC (2006)
	Sulfate (mg/L)	857	Nonparametric 95th percentile	ERG (2003)
	Chloride (mg/L)	250	Federal secondary drinking water standard	HMC (2005b)
	TDS (mg/L)	1560	Nonparametric 95th percentile	ERG (2003)
	Nitrate (mg/L)	--	Site standards are not proposed for molybdenum, nitrate, vanadium, thorium-230, and radium-226 plus radium-228 for the Middle Chinle Non-Mixing Zone based on the exclusions provided in 10 CFR Part 40 Appendix A - Criterion 5B(3)(a)(i) and (ii).	HMC (2005b)
	Vanadium (mg/L)	--		
	Thorium-230 (pCi/L)	--		
	Ra-226+Ra-228 (pCi/L)	--		

Table 2 Rationale for Each Ground Water Protection Standard (Continued)

Zone	Lower Chinle Non-Mixing Zone	GWPS ^a	Source	Citation
Lower Chinle Non-Mixing Zone	Selenium (mg/L)	0.32	Nonparametric 95th percentile	ERG (2003)
	Uranium (mg/L)	0.03	Federal drinking water standard	HMC (2005b)
	Molybdenum (mg/L)	0.1	Site standards were not proposed for molybdenum, nitrate, vanadium, thorium-230, and radium-226 plus radium-228 for the Lower Chinle Non-Mixing Zone based on the exclusions provided in 10 CFR Part 40 Appendix A - Criterion 5B3(3)(a)(i) and (ii). In 2006, NRC stated to use 0.1 for molybdenum in all Chinle zones.	HMC (2005b) HMC (2006)
	Sulfate (mg/L)	2000	Nonparametric 95th percentile	ERG (2003)
	Chloride (mg/L)	634	Nonparametric 95th percentile	ERG (2003)
	TDS (mg/L)	4,140	Nonparametric 95th percentile	ERG (2003)
	Nitrate (mg/L)	--	Site standards are not proposed for molybdenum, nitrate, vanadium, thorium-230, and radium-226 plus radium-228 for the Lower Chinle Non-Mixing Zone based on the exclusions provided in 10 CFR Part 40 Appendix A - Criterion 5B3(3)(a)(i) and (ii).	HMC (2005b)
	Vanadium (mg/L)	--		
	Thorium-230 (pCi/L)	--		
	Ra-226+Ra-228 (pCi/L)	--		

Note:

^a Groundwater Protection Standard values were obtained from Table 2 of HMC 2006.

Abbreviations:

GWPS = groundwater protection standard

mg/L = milligram per liter

pCi/L = picoCurie per liter

Ra-226 + Ra-228 = radium-226 and radium-228

TDS = total dissolved solids

Table 3 Wells Used To Derive Site Groundwater Protection Standards by Zone

Zone	Well Count (n = 39)	Constituents	Wells	Source Report
Alluvial Aquifer	9 (near site wells)	Selenium, Uranium, Molybdenum, Vanadium, Ra-226/-228, Thorium-230, Nitrate, TDS, Sulfate, Chloride	DD, ND, P, P1, P2, P3, P4, Q, and R	HMC (2005a)
Chinle Mixing Zone	13	Selenium, Uranium, Molybdenum, TDS, Sulfate, Nitrate, Chloride, Vanadium	CW9, CW10, CW15, CW17, CW24, CW35, CW36, CW37, CW39, CW43, CW50, CW52, and WR25	ERG (2003)
Upper Chinle Non-Mixing Zone	5	Selenium, Uranium, Molybdenum, TDS, Sulfate, Chloride, Vanadium	0931, 0934, CW3, CW13, and CW18	ERG (2003)
Middle Chinle Non-Mixing Zone	6	Selenium, Uranium, Molybdenum, TDS, Sulfate, Chloride	ACW, CW1, CW2, CW14, CW28, and WCW	ERG (2003)
Lower Chinle Non-Mixing Zone	6	Selenium, Uranium, Molybdenum, TDS, Sulfate, Chloride	CW26, CW29, CW31, CW32, CW33, and CW41	ERG (2003)

Abbreviations:

Ra-226 + Ra-228 = radium-226 and radium-228

TDS = total dissolved solids

Table 4 **Decision Tree for Background Threshold Values**

Sample Size	Censoring	Distribution ^a	Statistic Used for BTV ^b
All	%ND = 0%	NA	NA
	Detects < 5	NA	Maximum detection
n < 8	All	NA	Maximum detection
n ≥ 8	Detects ≥ 5	N, G, LN, or neither	95/95 UTL ^c

Notes:

^a Distribution assessed by goodness-of-fit tests based on detected values only conducted using ProUCL 5.1 at a 95% confidence level ($\alpha = 0.05$).

Distributions:

Normal (N): dataset follows a normal distribution, per the Shapiro-Wilk test.

Gamma (G): dataset follows an approximate gamma distribution, per the Kolmogorov-Smirnoff test.

Lognormal (LN): dataset follows a lognormal distribution, per the Shapiro-Wilk test.

^b Criteria for BTV selection based on USEPA 2015.

^c 95/95 UTL calculated in accordance with USEPA 2015 using ProUCL5.1.

Abbreviations:

95/95 UTL = one-sided upper 95 percent confidence limit for the 95th percentile

BTV = background threshold value

%ND = percent of dataset as nondetect

n = sample size

NA = not applicable

USEPA = United States Environmental Protection Agency

UTL = upper tolerance limit

Table 5 **Decision Tree for 95/95 Upper Tolerance Limits**

Sample Size	Censoring	Distribution ^a	Skewness ^b	Statistic Used for UTL ^c
All	Detects < 5	NA	NA	NA
n < 8	All	NA	NA	NA
n ≥ 8	Detects ≥ 5 %ND = 0	N	NA	Normal 95/95 UTL
		N and LN		
		N and LN and G		
		LN	NA	Lognormal 95/95 UTL
		G	NA	Gamma 95/95 UTL
		LN and G		
		not N, LN, or G	NA	Nonparametric 95/95 UTL ^d
	Detects ≥ 5 %ND < 50%	N, LN, or G	NA	Kaplan-Meier 95/95 UTL
		not N, LN, or G	Mild	Kaplan-Meier 95/95 UTL
			Moderate to High	Nonparametric 95/95 UTL ^d
	%ND > 50%	All	NA	Nonparametric 95/95 UTL ^d

Notes:

^a Distribution assessed by goodness-of-fit tests based on detected values only conducted using ProUCL 5.1 at a 95% confidence level ($\alpha = 0.05$).

Distributions:

Normal (N): dataset follows a normal distribution, per the Shapiro-Wilk test.

Gamma (G): dataset follows a gamma distribution, per the Kolmogorov-Smirnov test.

Lognormal (LN): dataset follows a lognormal distribution, per the Shapiro-Wilk test.

Nonparametric (NP): dataset does not follow any of the three distributions noted above.

^b Skewness estimated using the standard deviation of the log-transformed data (detects only) (σ). Datasets with $\sigma \leq 1.0$ are considered mildly skewed; $\sigma > 1.0$ is considered moderately to highly skewed (USEPA 2015).

^c Statistics calculated with ProUCL Version 5.1.

^d Nonparametric UTL is based on a rank-ordered value (e.g., maximum detection or second highest detection) that achieves the coverage and confidence coefficient for a given sample size. The ranks are unlikely to match these parameters exactly. Values presented are based on ranks from Table A-5 of Conover (1999), which correspond to minimum sample sizes needed to achieve the specified parameters. ProUCL selects the rank-ordered value that most closely matches the parameters, even if the rank yields a lower coverage or confidence coefficient.

Abbreviations:

95/95 UTL = one-sided upper 95% confidence limit for the 95th percentile

%ND = percent of dataset as nondetect

n = sample size

NA = not applicable

USEPA = United States Environmental Protection Agency

UTL = upper tolerance limit

Table 6 Comparison of Summary Statistics between HMC 2006 and Arcadis 2016 Results

Parameter (mg/L)	Zone	GWPS	GOF		UTL ^a			Descriptive Statistics				
			HMC	AUS	HMC	AUS	Δ	Min	Max	Mean	N	%ND
Uranium	Alluvial	0.16	NP	NP	0.16	0.174	+8.0%	0.0035	0.188	0.047	124	0
	Upper	0.09	NP	NP	0.09	0.124	+27.4%	0.0007	0.36	0.031	166	15.7
	Middle	0.07	NP	NP	0.07	0.076	+7.9%	0.0034	0.14	0.019	190	40.0
	Mixing	0.18	NP	NP	0.18	0.201	+10.4%	0.002	0.23	0.065	96	2.1
Selenium	Alluvial	0.32	NP	NP	0.32	0.429	+25.4%	0.010	0.58	0.180	124	0
	Upper	0.06	NP	NP	0.06	0.102	+41.2%	< 0.001	0.24	0.017	165	44.8
	Middle	0.07	NP	NP	0.07	0.09	+22.2%	< 0.001	0.22	0.016	192	35.9
	Lower	0.32	NP	NP	0.32	0.337	+5.0%	< 0.005	0.36	0.066	59	27.1
	Mixing	0.14	NP	NP	0.14	0.157	+10.8%	< 0.001	0.52	0.048	96	13.5
Molybdenum	Mixing	0.10	NP	NP ^b	0.10	0.09	-11.1%	< 0.010	0.13	0.030	67	65.7
Total Dissolved Solids	Alluvial	2,734	NP	NP	2,734	2,950	+7.3%	954	3,054	1,995	124	0
	Upper	2,010	NP	NP	2,010	2,130	+5.6%	920	2,160	1,613	166	0
	Middle	1,560	NP	Norm	1,560	1,688	+7.6%	560	1,970	1,273	187	0
	Lower	4,140	NP	NP	4,140	4,180	+1.0%	805	4,180	2,181	58	0
	Mixing	3,140	NP	NP	3,140	3,200	+1.9%	976	3,217	1,935	94	0
Sulfate	Alluvial	1,500	NP	NP	1,500	1,683	+10.9%	335	1,790	1,075	124	0
	Upper	914	Norm	Norm	914	903.9	-1.1%	535	998	747	167	0
	Middle	857	NP	NP	857	896	+4.4%	319	1,430	654	192	0
	Lower	2,000	NP	NP	2,000	2,080	+3.8%	284	2,140	991	60	0
	Mixing	1,750	NP	G	1,750	1,959	+10.7%	409	1,880	1,028	96	0
Nitrate	Alluvial	12.0	NP	NP	12	15	+20.0%	0.44	16.4	8.40	87	0
	Mixing	15.0	NP	G (KM)	15	20.6	+27.2%	< 0.100	21.8	3.87	58	20.7
Chloride	Upper	250	NP	NP	412	489	+15.7%	21	540	142	127	0
	Lower	634	NP	NP	634	657	+3.5%	46	657	204	28	0

Notes:

^a Values obtained from HMC 2006. The 95/95 UTL was calculated using ProUCL 5.1. Nonparametric UTLs from HMC are based on the 95th percentile of the dataset.

^b Unified guidance recommends nonparametric methods when nondetect data exceed 50% of the dataset (USEPA 2009).

Abbreviations:

Δ = percent increase (+) or decrease (-) in UTL recalculated in ProUCL 5.1 compared to GWPS proposed in HMC 2006. Blue shading indicates a UTL lower than the GWPS proposed in 2006.

%ND = percent nondetect

AUS = Arcadis U.S., Inc.

G = gamma distributed

GOF = goodness-of-fit test results for data distribution

GWPS = groundwater protection standard

HMC = Homestake Mining Company of California

KM = Kaplan-Meier

Max = maximum value in the dataset

mg/L = milligram per liter

Min = minimum value in the dataset

N = number of samples

NA = not applicable

Norm = normally distributed

NP = nonparametric

UTL = 95/95 upper tolerance limit

ATTACHMENT 1

Raw Data



Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	DD	10/10/1995	Selenium	0.017	mg/L	1
Alluvial	DD	10/10/1995	Sulfate	1651	mg/L	1
Alluvial	DD	10/10/1995	TDS	3054	mg/L	1
Alluvial	DD	10/10/1995	Uranium	0.163	mg/L	1
Alluvial	DD	10/10/1996	Selenium	0.021	mg/L	1
Alluvial	DD	10/10/1996	Sulfate	1683	mg/L	1
Alluvial	DD	10/10/1996	TDS	3050	mg/L	1
Alluvial	DD	10/10/1996	Uranium	0.162	mg/L	1
Alluvial	DD	4/14/1997	Nitrate	6.95	mg/L	1
Alluvial	DD	4/14/1997	Selenium	0.018	mg/L	1
Alluvial	DD	4/14/1997	Sulfate	1683	mg/L	1
Alluvial	DD	4/14/1997	TDS	3010	mg/L	1
Alluvial	DD	4/14/1997	Uranium	0.188	mg/L	1
Alluvial	DD	9/9/1997	Nitrate	5.1	mg/L	1
Alluvial	DD	9/9/1997	Selenium	0.023	mg/L	1
Alluvial	DD	9/9/1997	Sulfate	1710	mg/L	1
Alluvial	DD	9/9/1997	TDS	2950	mg/L	1
Alluvial	DD	9/9/1997	Uranium	0.147	mg/L	1
Alluvial	DD	4/1/1998	Nitrate	5.14	mg/L	1
Alluvial	DD	4/1/1998	Selenium	0.031	mg/L	1
Alluvial	DD	4/1/1998	Sulfate	1790	mg/L	1
Alluvial	DD	4/1/1998	TDS	2930	mg/L	1
Alluvial	DD	4/1/1998	Uranium	0.175	mg/L	1
Alluvial	DD	4/20/1999	Nitrate	4.26	mg/L	1
Alluvial	DD	4/20/1999	Selenium	0.026	mg/L	1
Alluvial	DD	4/20/1999	Sulfate	1540	mg/L	1
Alluvial	DD	4/20/1999	TDS	2870	mg/L	1
Alluvial	DD	4/20/1999	Uranium	0.161	mg/L	1
Alluvial	DD	4/6/2000	Nitrate	3.35	mg/L	1
Alluvial	DD	4/6/2000	Selenium	0.01	mg/L	1
Alluvial	DD	4/6/2000	Sulfate	1420	mg/L	1
Alluvial	DD	4/6/2000	TDS	2740	mg/L	1
Alluvial	DD	4/6/2000	Uranium	0.165	mg/L	1
Alluvial	DD	5/14/2002	Nitrate	3.73	mg/L	1
Alluvial	DD	5/14/2002	Selenium	0.035	mg/L	1
Alluvial	DD	5/14/2002	Sulfate	1500	mg/L	1
Alluvial	DD	5/14/2002	TDS	2680	mg/L	1
Alluvial	DD	5/14/2002	Uranium	0.178	mg/L	1
Alluvial	DD	6/3/2003	Nitrate	3.5	mg/L	1
Alluvial	DD	6/3/2003	Selenium	0.029	mg/L	1
Alluvial	DD	6/3/2003	Sulfate	1460	mg/L	1
Alluvial	DD	6/3/2003	TDS	2680	mg/L	1
Alluvial	DD	6/3/2003	Uranium	0.168	mg/L	1
Alluvial	DD	5/18/2004	Nitrate	3.74	mg/L	1
Alluvial	DD	5/18/2004	Selenium	0.03	mg/L	1
Alluvial	DD	5/18/2004	Sulfate	1500	mg/L	1
Alluvial	DD	5/18/2004	TDS	2710	mg/L	1
Alluvial	DD	5/18/2004	Uranium	0.1737	mg/L	1
Alluvial	ND	8/22/1995	Selenium	0.042	mg/L	1
Alluvial	ND	8/22/1995	Sulfate	340	mg/L	1
Alluvial	ND	8/22/1995	TDS	954	mg/L	1
Alluvial	ND	8/22/1995	Uranium	0.038	mg/L	1
Alluvial	ND	7/29/1996	Selenium	0.05	mg/L	1
Alluvial	ND	7/29/1996	Sulfate	335	mg/L	1
Alluvial	ND	7/29/1996	TDS	1057	mg/L	1
Alluvial	ND	7/29/1996	Uranium	0.0529	mg/L	1
Alluvial	ND	8/11/1997	Nitrate	0.44	mg/L	1
Alluvial	ND	8/11/1997	Selenium	0.04	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	ND	8/11/1997	Sulfate	362	mg/L	1
Alluvial	ND	8/11/1997	TDS	1070	mg/L	1
Alluvial	ND	8/11/1997	Uranium	0.056	mg/L	1
Alluvial	ND	8/5/1998	Nitrate	0.59	mg/L	1
Alluvial	ND	8/5/1998	Selenium	0.044	mg/L	1
Alluvial	ND	8/5/1998	Sulfate	363	mg/L	1
Alluvial	ND	8/5/1998	TDS	1060	mg/L	1
Alluvial	ND	8/5/1998	Uranium	0.0723	mg/L	1
Alluvial	ND	8/18/1999	Nitrate	1.14	mg/L	1
Alluvial	ND	8/18/1999	Selenium	0.071	mg/L	1
Alluvial	ND	8/18/1999	Sulfate	440	mg/L	1
Alluvial	ND	8/18/1999	TDS	1130	mg/L	1
Alluvial	ND	8/18/1999	Uranium	0.052	mg/L	1
Alluvial	ND	8/2/2000	Nitrate	1.26	mg/L	1
Alluvial	ND	8/2/2000	Selenium	0.088	mg/L	1
Alluvial	ND	8/2/2000	Sulfate	526	mg/L	1
Alluvial	ND	8/2/2000	TDS	1290	mg/L	1
Alluvial	ND	8/2/2000	Uranium	0.025	mg/L	1
Alluvial	ND	5/14/2002	Nitrate	1.39	mg/L	1
Alluvial	ND	5/14/2002	Selenium	0.109	mg/L	1
Alluvial	ND	5/14/2002	Sulfate	664	mg/L	1
Alluvial	ND	5/14/2002	TDS	1480	mg/L	1
Alluvial	ND	5/14/2002	Uranium	0.028	mg/L	1
Alluvial	ND	5/22/2003	Nitrate	1.4	mg/L	1
Alluvial	ND	5/22/2003	Selenium	0.144	mg/L	1
Alluvial	ND	5/22/2003	Sulfate	729	mg/L	1
Alluvial	ND	5/22/2003	TDS	1530	mg/L	1
Alluvial	ND	5/22/2003	Uranium	0.0303	mg/L	1
Alluvial	ND	5/18/2004	Nitrate	1.39	mg/L	1
Alluvial	ND	5/18/2004	Selenium	0.128	mg/L	1
Alluvial	ND	5/18/2004	Sulfate	907	mg/L	1
Alluvial	ND	5/18/2004	TDS	1770	mg/L	1
Alluvial	ND	5/18/2004	Uranium	0.0275	mg/L	1
Alluvial	P	3/16/1995	Selenium	0.03	mg/L	1
Alluvial	P	3/16/1995	Sulfate	843	mg/L	1
Alluvial	P	3/16/1995	TDS	1680	mg/L	1
Alluvial	P	3/16/1995	Uranium	0.047	mg/L	1
Alluvial	P	6/6/1995	Selenium	0.085	mg/L	1
Alluvial	P	6/6/1995	Sulfate	885	mg/L	1
Alluvial	P	6/6/1995	TDS	1729	mg/L	1
Alluvial	P	6/6/1995	Uranium	0.0636	mg/L	1
Alluvial	P	9/5/1995	Selenium	0.062	mg/L	1
Alluvial	P	9/5/1995	Sulfate	885	mg/L	1
Alluvial	P	9/5/1995	TDS	1681	mg/L	1
Alluvial	P	9/5/1995	Uranium	0.054	mg/L	1
Alluvial	P	12/5/1995	Selenium	0.06	mg/L	1
Alluvial	P	12/5/1995	Sulfate	846	mg/L	1
Alluvial	P	12/5/1995	TDS	1698	mg/L	1
Alluvial	P	12/5/1995	Uranium	0.0493	mg/L	1
Alluvial	P	3/11/1996	Selenium	0.051	mg/L	1
Alluvial	P	3/11/1996	Sulfate	1001	mg/L	1
Alluvial	P	3/11/1996	TDS	1628	mg/L	1
Alluvial	P	3/11/1996	Uranium	0.046	mg/L	1
Alluvial	P	6/3/1996	Selenium	0.055	mg/L	1
Alluvial	P	6/3/1996	Sulfate	865	mg/L	1
Alluvial	P	6/3/1996	TDS	1669	mg/L	1
Alluvial	P	6/3/1996	Uranium	0.056	mg/L	1
Alluvial	P	9/17/1996	Selenium	0.077	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	P	9/17/1996	Sulfate	865	mg/L	1
Alluvial	P	9/17/1996	TDS	1720	mg/L	1
Alluvial	P	9/17/1996	Uranium	0.0393	mg/L	1
Alluvial	P	10/10/1996	Selenium	0.065	mg/L	1
Alluvial	P	10/10/1996	Sulfate	833	mg/L	1
Alluvial	P	10/10/1996	TDS	1680	mg/L	1
Alluvial	P	10/10/1996	Uranium	0.0652	mg/L	1
Alluvial	P	3/6/1997	Nitrate	3.04	mg/L	1
Alluvial	P	3/6/1997	Selenium	0.063	mg/L	1
Alluvial	P	3/6/1997	Sulfate	867	mg/L	1
Alluvial	P	3/6/1997	TDS	1670	mg/L	1
Alluvial	P	3/6/1997	Uranium	0.044	mg/L	1
Alluvial	P	5/27/1997	Nitrate	2.85	mg/L	1
Alluvial	P	5/27/1997	Selenium	0.059	mg/L	1
Alluvial	P	5/27/1997	Sulfate	919	mg/L	1
Alluvial	P	5/27/1997	TDS	1680	mg/L	1
Alluvial	P	5/27/1997	Uranium	0.045	mg/L	1
Alluvial	P	9/9/1997	Nitrate	1.16	mg/L	1
Alluvial	P	9/9/1997	Selenium	0.026	mg/L	1
Alluvial	P	9/9/1997	Sulfate	835	mg/L	1
Alluvial	P	9/9/1997	TDS	1560	mg/L	1
Alluvial	P	9/9/1997	Uranium	0.04	mg/L	1
Alluvial	P	11/3/1997	Nitrate	3.26	mg/L	1
Alluvial	P	11/3/1997	Selenium	0.061	mg/L	1
Alluvial	P	11/3/1997	Sulfate	835	mg/L	1
Alluvial	P	11/3/1997	TDS	1660	mg/L	1
Alluvial	P	11/3/1997	Uranium	0.051	mg/L	1
Alluvial	P	3/4/1998	Nitrate	3.49	mg/L	1
Alluvial	P	3/4/1998	Selenium	0.082	mg/L	1
Alluvial	P	3/4/1998	Sulfate	873	mg/L	1
Alluvial	P	3/4/1998	TDS	1700	mg/L	1
Alluvial	P	3/4/1998	Uranium	0.0511	mg/L	1
Alluvial	P	5/5/1998	Nitrate	9.23	mg/L	1
Alluvial	P	5/5/1998	Selenium	0.182	mg/L	1
Alluvial	P	5/5/1998	Sulfate	984	mg/L	1
Alluvial	P	5/5/1998	TDS	1870	mg/L	1
Alluvial	P	5/5/1998	Uranium	0.0344	mg/L	1
Alluvial	P	9/16/1998	Nitrate	10.8	mg/L	1
Alluvial	P	9/16/1998	Selenium	0.196	mg/L	1
Alluvial	P	9/16/1998	Sulfate	980	mg/L	1
Alluvial	P	9/16/1998	TDS	1890	mg/L	1
Alluvial	P	9/16/1998	Uranium	0.0409	mg/L	1
Alluvial	P	11/12/1998	Nitrate	8.8	mg/L	1
Alluvial	P	11/12/1998	Selenium	0.164	mg/L	1
Alluvial	P	11/12/1998	Sulfate	986	mg/L	1
Alluvial	P	11/12/1998	TDS	1860	mg/L	1
Alluvial	P	11/12/1998	Uranium	0.032	mg/L	1
Alluvial	P	3/2/1999	Nitrate	8.08	mg/L	1
Alluvial	P	3/2/1999	Selenium	0.139	mg/L	1
Alluvial	P	3/2/1999	Sulfate	1030	mg/L	1
Alluvial	P	3/2/1999	TDS	1830	mg/L	1
Alluvial	P	3/2/1999	Uranium	0.035	mg/L	1
Alluvial	P	5/10/1999	Nitrate	7.45	mg/L	1
Alluvial	P	5/10/1999	Selenium	0.155	mg/L	1
Alluvial	P	5/10/1999	Sulfate	917	mg/L	1
Alluvial	P	5/10/1999	TDS	1790	mg/L	1
Alluvial	P	5/10/1999	Uranium	0.0324	mg/L	1
Alluvial	P	9/15/1999	Nitrate	9.65	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	P	9/15/1999	Selenium	0.189	mg/L	1
Alluvial	P	9/15/1999	Sulfate	964	mg/L	1
Alluvial	P	9/15/1999	TDS	1840	mg/L	1
Alluvial	P	9/15/1999	Uranium	0.0358	mg/L	1
Alluvial	P	11/4/1999	Nitrate	8.88	mg/L	1
Alluvial	P	11/4/1999	Selenium	0.174	mg/L	1
Alluvial	P	11/4/1999	Sulfate	938	mg/L	1
Alluvial	P	11/4/1999	TDS	1800	mg/L	1
Alluvial	P	11/4/1999	Uranium	0.0322	mg/L	1
Alluvial	P	1/11/2000	Nitrate	9.25	mg/L	1
Alluvial	P	1/11/2000	Selenium	0.16	mg/L	1
Alluvial	P	1/11/2000	Sulfate	962	mg/L	1
Alluvial	P	1/11/2000	TDS	1800	mg/L	1
Alluvial	P	1/11/2000	Uranium	0.035	mg/L	1
Alluvial	P	3/7/2000	Nitrate	8.84	mg/L	1
Alluvial	P	3/7/2000	Selenium	0.043	mg/L	1
Alluvial	P	3/7/2000	Sulfate	916	mg/L	1
Alluvial	P	3/7/2000	TDS	1820	mg/L	1
Alluvial	P	3/7/2000	Uranium	0.0109	mg/L	1
Alluvial	P	5/9/2000	Nitrate	7.77	mg/L	1
Alluvial	P	5/9/2000	Selenium	0.1325	mg/L	1
Alluvial	P	5/9/2000	Sulfate	858	mg/L	1
Alluvial	P	5/9/2000	TDS	1800	mg/L	1
Alluvial	P	5/9/2000	Uranium	0.05221	mg/L	1
Alluvial	P	8/31/2000	Nitrate	5.08	mg/L	1
Alluvial	P	8/31/2000	Selenium	0.09	mg/L	1
Alluvial	P	8/31/2000	Sulfate	851	mg/L	1
Alluvial	P	8/31/2000	TDS	1760	mg/L	1
Alluvial	P	8/31/2000	Uranium	0.0351	mg/L	1
Alluvial	P	11/28/2000	Nitrate	6.85	mg/L	1
Alluvial	P	11/28/2000	Selenium	0.137	mg/L	1
Alluvial	P	11/28/2000	Sulfate	910	mg/L	1
Alluvial	P	11/28/2000	TDS	1790	mg/L	1
Alluvial	P	11/28/2000	Uranium	0.02851	mg/L	1
Alluvial	P	7/23/2001	Nitrate	8.4	mg/L	1
Alluvial	P	7/23/2001	Selenium	0.17	mg/L	1
Alluvial	P	7/23/2001	Sulfate	983	mg/L	1
Alluvial	P	7/23/2001	TDS	1870	mg/L	1
Alluvial	P	7/23/2001	Uranium	0.03	mg/L	1
Alluvial	P	7/15/2002	Nitrate	8	mg/L	1
Alluvial	P	7/15/2002	Selenium	0.179	mg/L	1
Alluvial	P	7/15/2002	Sulfate	1010	mg/L	1
Alluvial	P	7/15/2002	TDS	1950	mg/L	1
Alluvial	P	7/15/2002	Uranium	0.027	mg/L	1
Alluvial	P	7/15/2003	Nitrate	7	mg/L	1
Alluvial	P	7/15/2003	Selenium	0.167	mg/L	1
Alluvial	P	7/15/2003	Sulfate	1070	mg/L	1
Alluvial	P	7/15/2003	TDS	1860	mg/L	1
Alluvial	P	7/15/2003	Uranium	0.027	mg/L	1
Alluvial	P	7/7/2004	Nitrate	7.22	mg/L	1
Alluvial	P	7/7/2004	Selenium	0.18	mg/L	1
Alluvial	P	7/7/2004	Sulfate	1130	mg/L	1
Alluvial	P	7/7/2004	TDS	1940	mg/L	1
Alluvial	P	7/7/2004	Uranium	0.0325	mg/L	1
Alluvial	P1	1/4/1995	Selenium	0.238	mg/L	1
Alluvial	P1	1/4/1995	Sulfate	1108	mg/L	1
Alluvial	P1	1/4/1995	TDS	2088	mg/L	1
Alluvial	P1	1/4/1995	Uranium	0.026	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	P1	4/12/1995	Selenium	0.167	mg/L	1
Alluvial	P1	4/12/1995	Sulfate	1093	mg/L	1
Alluvial	P1	4/12/1995	TDS	2104	mg/L	1
Alluvial	P1	4/12/1995	Uranium	0.032	mg/L	1
Alluvial	P1	7/6/1995	Selenium	0.294	mg/L	1
Alluvial	P1	7/6/1995	Sulfate	1069	mg/L	1
Alluvial	P1	7/6/1995	TDS	2072	mg/L	1
Alluvial	P1	7/6/1995	Uranium	0.0383	mg/L	1
Alluvial	P1	10/3/1995	Selenium	0.214	mg/L	1
Alluvial	P1	10/3/1995	Sulfate	1108	mg/L	1
Alluvial	P1	10/3/1995	TDS	2083	mg/L	1
Alluvial	P1	10/3/1995	Uranium	0.03	mg/L	1
Alluvial	P1	1/10/1996	Selenium	0.22	mg/L	1
Alluvial	P1	1/10/1996	Sulfate	1112	mg/L	1
Alluvial	P1	1/10/1996	TDS	2113	mg/L	1
Alluvial	P1	1/10/1996	Uranium	0.031	mg/L	1
Alluvial	P1	4/9/1996	Selenium	0.246	mg/L	1
Alluvial	P1	4/9/1996	Sulfate	1151	mg/L	1
Alluvial	P1	4/9/1996	TDS	2072	mg/L	1
Alluvial	P1	4/9/1996	Uranium	0.033	mg/L	1
Alluvial	P1	7/19/1996	Selenium	0.194	mg/L	1
Alluvial	P1	7/19/1996	Sulfate	1150	mg/L	1
Alluvial	P1	7/19/1996	TDS	2187	mg/L	1
Alluvial	P1	7/19/1996	Uranium	0.028	mg/L	1
Alluvial	P1	11/4/1996	Selenium	0.241	mg/L	1
Alluvial	P1	11/4/1996	Sulfate	1125	mg/L	1
Alluvial	P1	11/4/1996	TDS	2090	mg/L	1
Alluvial	P1	11/4/1996	Uranium	0.0308	mg/L	1
Alluvial	P1	1/13/1997	Nitrate	12.8	mg/L	1
Alluvial	P1	1/13/1997	Selenium	0.237	mg/L	1
Alluvial	P1	1/13/1997	Sulfate	1160	mg/L	1
Alluvial	P1	1/13/1997	TDS	2030	mg/L	1
Alluvial	P1	1/13/1997	Uranium	0.024	mg/L	1
Alluvial	P1	4/14/1997	Nitrate	13.1	mg/L	1
Alluvial	P1	4/14/1997	Selenium	0.215	mg/L	1
Alluvial	P1	4/14/1997	Sulfate	1184	mg/L	1
Alluvial	P1	4/14/1997	TDS	2120	mg/L	1
Alluvial	P1	4/14/1997	Uranium	0.029	mg/L	1
Alluvial	P1	7/8/1997	Nitrate	12.2	mg/L	1
Alluvial	P1	7/8/1997	Selenium	0.232	mg/L	1
Alluvial	P1	7/8/1997	Sulfate	1197	mg/L	1
Alluvial	P1	7/8/1997	TDS	2100	mg/L	1
Alluvial	P1	7/8/1997	Uranium	0.036	mg/L	1
Alluvial	P1	11/3/1997	Nitrate	12.3	mg/L	1
Alluvial	P1	11/3/1997	Selenium	0.225	mg/L	1
Alluvial	P1	11/3/1997	Sulfate	1100	mg/L	1
Alluvial	P1	11/3/1997	TDS	2090	mg/L	1
Alluvial	P1	11/3/1997	Uranium	0.031	mg/L	1
Alluvial	P1	1/19/1998	Nitrate	12.1	mg/L	1
Alluvial	P1	1/19/1998	Selenium	0.243	mg/L	1
Alluvial	P1	1/19/1998	Sulfate	1150	mg/L	1
Alluvial	P1	1/19/1998	TDS	2130	mg/L	1
Alluvial	P1	1/19/1998	Uranium	0.035	mg/L	1
Alluvial	P1	4/1/1998	Nitrate	11.6	mg/L	1
Alluvial	P1	4/1/1998	Selenium	0.242	mg/L	1
Alluvial	P1	4/1/1998	Sulfate	1300	mg/L	1
Alluvial	P1	4/1/1998	TDS	2140	mg/L	1
Alluvial	P1	4/1/1998	Uranium	0.0297	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	P1	7/14/1998	Nitrate	11	mg/L	1
Alluvial	P1	7/14/1998	Selenium	0.252	mg/L	1
Alluvial	P1	7/14/1998	Sulfate	1200	mg/L	1
Alluvial	P1	7/14/1998	TDS	2210	mg/L	1
Alluvial	P1	7/14/1998	Uranium	0.0416	mg/L	1
Alluvial	P1	10/28/1998	Nitrate	11.8	mg/L	1
Alluvial	P1	10/28/1998	Selenium	0.24	mg/L	1
Alluvial	P1	10/28/1998	Sulfate	1100	mg/L	1
Alluvial	P1	10/28/1998	TDS	2110	mg/L	1
Alluvial	P1	10/28/1998	Uranium	0.041	mg/L	1
Alluvial	P1	1/21/1999	Nitrate	10.5	mg/L	1
Alluvial	P1	1/21/1999	Selenium	0.224	mg/L	1
Alluvial	P1	1/21/1999	Sulfate	1150	mg/L	1
Alluvial	P1	1/21/1999	TDS	2150	mg/L	1
Alluvial	P1	1/21/1999	Uranium	0.0366	mg/L	1
Alluvial	P2	2/3/1995	Selenium	0.294	mg/L	1
Alluvial	P2	2/3/1995	Sulfate	1112	mg/L	1
Alluvial	P2	2/3/1995	TDS	2092	mg/L	1
Alluvial	P2	2/3/1995	Uranium	0.027	mg/L	1
Alluvial	P2	5/5/1995	Selenium	0.244	mg/L	1
Alluvial	P2	5/5/1995	Sulfate	1101	mg/L	1
Alluvial	P2	5/5/1995	TDS	2101	mg/L	1
Alluvial	P2	5/5/1995	Uranium	0.025	mg/L	1
Alluvial	P2	8/2/1995	Selenium	0.244	mg/L	1
Alluvial	P2	8/2/1995	Sulfate	1140	mg/L	1
Alluvial	P2	8/2/1995	TDS	2108	mg/L	1
Alluvial	P2	8/2/1995	Uranium	0.025	mg/L	1
Alluvial	P2	11/6/1995	Selenium	0.264	mg/L	1
Alluvial	P2	11/6/1995	Sulfate	1115	mg/L	1
Alluvial	P2	11/6/1995	TDS	2065	mg/L	1
Alluvial	P2	11/6/1995	Uranium	0.029	mg/L	1
Alluvial	P2	2/12/1996	Selenium	0.221	mg/L	1
Alluvial	P2	2/12/1996	Sulfate	1126	mg/L	1
Alluvial	P2	2/12/1996	TDS	2083	mg/L	1
Alluvial	P2	2/12/1996	Uranium	0.033	mg/L	1
Alluvial	P2	5/14/1996	Selenium	0.232	mg/L	1
Alluvial	P2	5/14/1996	Sulfate	1140	mg/L	1
Alluvial	P2	5/14/1996	TDS	2082	mg/L	1
Alluvial	P2	5/14/1996	Uranium	0.027	mg/L	1
Alluvial	P2	7/29/1996	Selenium	0.236	mg/L	1
Alluvial	P2	7/29/1996	Sulfate	1161	mg/L	1
Alluvial	P2	7/29/1996	TDS	2110	mg/L	1
Alluvial	P2	7/29/1996	Uranium	0.0316	mg/L	1
Alluvial	P2	2/3/1997	Nitrate	15.5	mg/L	1
Alluvial	P2	2/3/1997	Selenium	0.194	mg/L	1
Alluvial	P2	2/3/1997	Sulfate	1163	mg/L	1
Alluvial	P2	2/3/1997	TDS	2050	mg/L	1
Alluvial	P2	2/3/1997	Uranium	0.035	mg/L	1
Alluvial	P2	4/29/1997	Nitrate	13.3	mg/L	1
Alluvial	P2	4/29/1997	Selenium	0.233	mg/L	1
Alluvial	P2	4/29/1997	Sulfate	1149	mg/L	1
Alluvial	P2	4/29/1997	TDS	2070	mg/L	1
Alluvial	P2	4/29/1997	Uranium	0.029	mg/L	1
Alluvial	P2	7/28/1997	Selenium	0.276	mg/L	1
Alluvial	P2	7/28/1997	Sulfate	1200	mg/L	1
Alluvial	P2	7/28/1997	TDS	2050	mg/L	1
Alluvial	P2	7/28/1997	Uranium	0.027	mg/L	1
Alluvial	P2	10/13/1997	Nitrate	10.4	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	P2	10/13/1997	Selenium	0.217	mg/L	1
Alluvial	P2	10/13/1997	Sulfate	1250	mg/L	1
Alluvial	P2	10/13/1997	TDS	2070	mg/L	1
Alluvial	P2	10/13/1997	Uranium	0.026	mg/L	1
Alluvial	P2	2/10/1998	Nitrate	12.4	mg/L	1
Alluvial	P2	2/10/1998	Selenium	0.3	mg/L	1
Alluvial	P2	2/10/1998	Sulfate	1070	mg/L	1
Alluvial	P2	2/10/1998	TDS	2080	mg/L	1
Alluvial	P2	2/10/1998	Uranium	0.0274	mg/L	1
Alluvial	P2	5/5/1998	Nitrate	11.6	mg/L	1
Alluvial	P2	5/5/1998	Selenium	0.21	mg/L	1
Alluvial	P2	5/5/1998	Sulfate	1100	mg/L	1
Alluvial	P2	5/5/1998	TDS	2060	mg/L	1
Alluvial	P2	5/5/1998	Uranium	0.0286	mg/L	1
Alluvial	P2	8/4/1998	Nitrate	10.6	mg/L	1
Alluvial	P2	8/4/1998	Selenium	0.209	mg/L	1
Alluvial	P2	8/4/1998	Sulfate	1130	mg/L	1
Alluvial	P2	8/4/1998	TDS	2090	mg/L	1
Alluvial	P2	8/4/1998	Uranium	0.0432	mg/L	1
Alluvial	P2	10/28/1998	Nitrate	11.4	mg/L	1
Alluvial	P2	10/28/1998	Selenium	0.236	mg/L	1
Alluvial	P2	10/28/1998	Sulfate	1030	mg/L	1
Alluvial	P2	10/28/1998	TDS	2000	mg/L	1
Alluvial	P2	10/28/1998	Uranium	0.0494	mg/L	1
Alluvial	P2	2/3/1999	Nitrate	10.4	mg/L	1
Alluvial	P2	2/3/1999	Selenium	0.194	mg/L	1
Alluvial	P2	2/3/1999	Sulfate	1100	mg/L	1
Alluvial	P2	2/3/1999	TDS	2000	mg/L	1
Alluvial	P2	2/3/1999	Uranium	0.0451	mg/L	1
Alluvial	P2	5/11/1999	Nitrate	10.6	mg/L	1
Alluvial	P2	5/11/1999	Selenium	0.194	mg/L	1
Alluvial	P2	5/11/1999	Sulfate	1050	mg/L	1
Alluvial	P2	5/11/1999	TDS	2070	mg/L	1
Alluvial	P2	5/11/1999	Uranium	0.037	mg/L	1
Alluvial	P2	8/18/1999	Nitrate	11.7	mg/L	1
Alluvial	P2	8/18/1999	Selenium	0.212	mg/L	1
Alluvial	P2	8/18/1999	Sulfate	1120	mg/L	1
Alluvial	P2	8/18/1999	TDS	2040	mg/L	1
Alluvial	P2	8/18/1999	Uranium	0.0384	mg/L	1
Alluvial	P2	11/2/1999	Nitrate	12.6	mg/L	1
Alluvial	P2	11/2/1999	Selenium	0.2	mg/L	1
Alluvial	P2	11/2/1999	Sulfate	1090	mg/L	1
Alluvial	P2	11/2/1999	TDS	2050	mg/L	1
Alluvial	P2	11/2/1999	Uranium	0.036	mg/L	1
Alluvial	P2	2/9/2000	Nitrate	8.3	mg/L	1
Alluvial	P2	2/9/2000	Selenium	0.205	mg/L	1
Alluvial	P2	2/9/2000	Sulfate	1060	mg/L	1
Alluvial	P2	2/9/2000	TDS	1970	mg/L	1
Alluvial	P2	2/9/2000	Uranium	0.0336	mg/L	1
Alluvial	P2	5/9/2000	Nitrate	11	mg/L	1
Alluvial	P2	5/9/2000	Selenium	0.1852	mg/L	1
Alluvial	P2	5/9/2000	Sulfate	1020	mg/L	1
Alluvial	P2	5/9/2000	TDS	2080	mg/L	1
Alluvial	P2	5/9/2000	Uranium	0.03186	mg/L	1
Alluvial	P2	8/2/2000	Nitrate	9.07	mg/L	1
Alluvial	P2	8/2/2000	Selenium	0.182	mg/L	1
Alluvial	P2	8/2/2000	Sulfate	1030	mg/L	1
Alluvial	P2	8/2/2000	TDS	2020	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	P2	8/2/2000	Uranium	0.032	mg/L	1
Alluvial	P2	11/28/2000	Nitrate	12.1	mg/L	1
Alluvial	P2	11/28/2000	Selenium	0.227	mg/L	1
Alluvial	P2	11/28/2000	Sulfate	1070	mg/L	1
Alluvial	P2	11/28/2000	TDS	2100	mg/L	1
Alluvial	P2	11/28/2000	Uranium	0.0317	mg/L	1
Alluvial	P2	4/23/2003	Nitrate	9.4	mg/L	1
Alluvial	P2	4/23/2003	Selenium	0.28	mg/L	1
Alluvial	P2	4/23/2003	Sulfate	1270	mg/L	1
Alluvial	P2	4/23/2003	TDS	2210	mg/L	1
Alluvial	P2	4/23/2003	Uranium	0.0386	mg/L	1
Alluvial	P2	2/16/2004	Nitrate	11.3	mg/L	1
Alluvial	P2	2/16/2004	Selenium	0.243	mg/L	1
Alluvial	P2	2/16/2004	Sulfate	1260	mg/L	1
Alluvial	P2	2/16/2004	TDS	2210	mg/L	1
Alluvial	P2	2/16/2004	Uranium	0.0401	mg/L	1
Alluvial	P3	4/23/1998	Nitrate	7.28	mg/L	1
Alluvial	P3	4/23/1998	Selenium	0.173	mg/L	1
Alluvial	P3	4/23/1998	Sulfate	975	mg/L	1
Alluvial	P3	4/23/1998	TDS	1900	mg/L	1
Alluvial	P3	4/23/1998	Uranium	0.024	mg/L	1
Alluvial	P3	3/7/2000	Nitrate	10.1	mg/L	1
Alluvial	P3	3/7/2000	Selenium	0.065	mg/L	1
Alluvial	P3	3/7/2000	Sulfate	1030	mg/L	1
Alluvial	P3	3/7/2000	TDS	1960	mg/L	1
Alluvial	P3	3/7/2000	Uranium	0.0113	mg/L	1
Alluvial	P3	3/8/2001	Nitrate	9.92	mg/L	1
Alluvial	P3	3/8/2001	Selenium	0.161	mg/L	1
Alluvial	P3	3/8/2001	Sulfate	1070	mg/L	1
Alluvial	P3	3/8/2001	TDS	1760	mg/L	1
Alluvial	P3	3/8/2001	Uranium	0.02942	mg/L	1
Alluvial	P3	3/9/2004	Nitrate	11	mg/L	1
Alluvial	P3	3/9/2004	Selenium	0.237	mg/L	1
Alluvial	P3	3/9/2004	Sulfate	1230	mg/L	1
Alluvial	P3	3/9/2004	TDS	2220	mg/L	1
Alluvial	P3	3/9/2004	Uranium	0.0398	mg/L	1
Alluvial	P4	4/24/1998	Nitrate	3.13	mg/L	1
Alluvial	P4	4/24/1998	Selenium	0.104	mg/L	1
Alluvial	P4	4/24/1998	Sulfate	885	mg/L	1
Alluvial	P4	4/24/1998	TDS	1610	mg/L	1
Alluvial	P4	4/24/1998	Uranium	0.022	mg/L	1
Alluvial	P4	3/7/2000	Nitrate	4.41	mg/L	1
Alluvial	P4	3/7/2000	Selenium	0.088	mg/L	1
Alluvial	P4	3/7/2000	Sulfate	803	mg/L	1
Alluvial	P4	3/7/2000	TDS	1500	mg/L	1
Alluvial	P4	3/7/2000	Uranium	0.0035	mg/L	1
Alluvial	P4	3/8/2001	Nitrate	4.48	mg/L	1
Alluvial	P4	3/8/2001	Selenium	0.1095	mg/L	1
Alluvial	P4	3/8/2001	Sulfate	848	mg/L	1
Alluvial	P4	3/8/2001	TDS	1360	mg/L	1
Alluvial	P4	3/8/2001	Uranium	0.02362	mg/L	1
Alluvial	P4	4/4/2002	Nitrate	4.64	mg/L	1
Alluvial	P4	4/4/2002	Selenium	0.111	mg/L	1
Alluvial	P4	4/4/2002	Sulfate	836	mg/L	1
Alluvial	P4	4/4/2002	TDS	1530	mg/L	1
Alluvial	P4	4/4/2002	Uranium	0.0242	mg/L	1
Alluvial	P4	4/23/2003	Nitrate	4.9	mg/L	1
Alluvial	P4	4/23/2003	Selenium	0.142	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	P4	4/23/2003	Sulfate	838	mg/L	1
Alluvial	P4	4/23/2003	TDS	1470	mg/L	1
Alluvial	P4	4/23/2003	Uranium	0.0913	mg/L	1
Alluvial	Q	3/16/1995	Selenium	0.096	mg/L	1
Alluvial	Q	3/16/1995	Sulfate	1098	mg/L	1
Alluvial	Q	3/16/1995	TDS	2068	mg/L	1
Alluvial	Q	3/16/1995	Uranium	0.046	mg/L	1
Alluvial	Q	9/5/1995	Selenium	0.155	mg/L	1
Alluvial	Q	9/5/1995	Sulfate	1103	mg/L	1
Alluvial	Q	9/5/1995	TDS	2015	mg/L	1
Alluvial	Q	9/5/1995	Uranium	0.052	mg/L	1
Alluvial	Q	3/11/1996	Selenium	0.201	mg/L	1
Alluvial	Q	3/11/1996	Sulfate	1366	mg/L	1
Alluvial	Q	3/11/1996	TDS	2070	mg/L	1
Alluvial	Q	3/11/1996	Uranium	0.046	mg/L	1
Alluvial	Q	9/17/1996	Selenium	0.294	mg/L	1
Alluvial	Q	9/17/1996	Sulfate	1105	mg/L	1
Alluvial	Q	9/17/1996	TDS	2086	mg/L	1
Alluvial	Q	9/17/1996	Uranium	0.0413	mg/L	1
Alluvial	Q	3/6/1997	Nitrate	8.16	mg/L	1
Alluvial	Q	3/6/1997	Selenium	0.197	mg/L	1
Alluvial	Q	3/6/1997	Sulfate	1146	mg/L	1
Alluvial	Q	3/6/1997	TDS	2090	mg/L	1
Alluvial	Q	3/6/1997	Uranium	0.051	mg/L	1
Alluvial	Q	9/9/1997	Nitrate	13.5	mg/L	1
Alluvial	Q	9/9/1997	Selenium	0.207	mg/L	1
Alluvial	Q	9/9/1997	Sulfate	1250	mg/L	1
Alluvial	Q	9/9/1997	TDS	2140	mg/L	1
Alluvial	Q	9/9/1997	Uranium	0.043	mg/L	1
Alluvial	Q	3/4/1998	Nitrate	8.4	mg/L	1
Alluvial	Q	3/4/1998	Selenium	0.2	mg/L	1
Alluvial	Q	3/4/1998	Sulfate	1160	mg/L	1
Alluvial	Q	3/4/1998	TDS	2120	mg/L	1
Alluvial	Q	3/4/1998	Uranium	0.0538	mg/L	1
Alluvial	Q	3/2/1999	Nitrate	9.34	mg/L	1
Alluvial	Q	3/2/1999	Selenium	0.21	mg/L	1
Alluvial	Q	3/2/1999	Sulfate	1270	mg/L	1
Alluvial	Q	3/2/1999	TDS	2250	mg/L	1
Alluvial	Q	3/2/1999	Uranium	0.0588	mg/L	1
Alluvial	Q	1/12/2000	Nitrate	10.2	mg/L	1
Alluvial	Q	1/12/2000	Selenium	0.22	mg/L	1
Alluvial	Q	1/12/2000	Sulfate	1200	mg/L	1
Alluvial	Q	1/12/2000	TDS	2200	mg/L	1
Alluvial	Q	1/12/2000	Uranium	0.056	mg/L	1
Alluvial	Q	3/14/2000	Nitrate	9.64	mg/L	1
Alluvial	Q	3/14/2000	Selenium	0.242	mg/L	1
Alluvial	Q	3/14/2000	Sulfate	1070	mg/L	1
Alluvial	Q	3/14/2000	TDS	2250	mg/L	1
Alluvial	Q	3/14/2000	Uranium	0.0565	mg/L	1
Alluvial	Q	5/14/2002	Nitrate	10	mg/L	1
Alluvial	Q	5/14/2002	Selenium	0.263	mg/L	1
Alluvial	Q	5/14/2002	Sulfate	1330	mg/L	1
Alluvial	Q	5/14/2002	TDS	2310	mg/L	1
Alluvial	Q	5/14/2002	Uranium	0.0521	mg/L	1
Alluvial	Q	5/15/2003	Nitrate	9.4	mg/L	1
Alluvial	Q	5/15/2003	Selenium	0.297	mg/L	1
Alluvial	Q	5/15/2003	Sulfate	1390	mg/L	1
Alluvial	Q	5/15/2003	TDS	2340	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	Q	5/15/2003	Uranium	0.0532	mg/L	1
Alluvial	Q	5/18/2004	Nitrate	9.72	mg/L	1
Alluvial	Q	5/18/2004	Selenium	0.256	mg/L	1
Alluvial	Q	5/18/2004	Sulfate	1340	mg/L	1
Alluvial	Q	5/18/2004	TDS	2350	mg/L	1
Alluvial	Q	5/18/2004	Uranium	0.0528	mg/L	1
Alluvial	R	6/6/1995	Selenium	0.22	mg/L	1
Alluvial	R	6/6/1995	Sulfate	1007	mg/L	1
Alluvial	R	6/6/1995	TDS	1862	mg/L	1
Alluvial	R	6/6/1995	Uranium	0.0247	mg/L	1
Alluvial	R	9/5/1995	Selenium	0.214	mg/L	1
Alluvial	R	9/5/1995	Sulfate	1053	mg/L	1
Alluvial	R	9/5/1995	TDS	1884	mg/L	1
Alluvial	R	9/5/1995	Uranium	0.018	mg/L	1
Alluvial	R	6/3/1996	Selenium	0.269	mg/L	1
Alluvial	R	6/3/1996	Sulfate	1096	mg/L	1
Alluvial	R	6/3/1996	TDS	1943	mg/L	1
Alluvial	R	6/3/1996	Uranium	0.02	mg/L	1
Alluvial	R	9/17/1996	Selenium	0.406	mg/L	1
Alluvial	R	9/17/1996	Sulfate	1104	mg/L	1
Alluvial	R	9/17/1996	TDS	2029	mg/L	1
Alluvial	R	9/17/1996	Uranium	0.0142	mg/L	1
Alluvial	R	10/10/1996	Selenium	0.281	mg/L	1
Alluvial	R	10/10/1996	Sulfate	1051	mg/L	1
Alluvial	R	10/10/1996	TDS	1970	mg/L	1
Alluvial	R	10/10/1996	Uranium	0.0197	mg/L	1
Alluvial	R	5/27/1997	Nitrate	10.5	mg/L	1
Alluvial	R	5/27/1997	Selenium	0.288	mg/L	1
Alluvial	R	5/27/1997	Sulfate	1226	mg/L	1
Alluvial	R	5/27/1997	TDS	2050	mg/L	1
Alluvial	R	5/27/1997	Uranium	0.014	mg/L	1
Alluvial	R	5/6/1998	Nitrate	12.3	mg/L	1
Alluvial	R	5/6/1998	Selenium	0.326	mg/L	1
Alluvial	R	5/6/1998	Sulfate	1120	mg/L	1
Alluvial	R	5/6/1998	TDS	2050	mg/L	1
Alluvial	R	5/6/1998	Uranium	0.0178	mg/L	1
Alluvial	R	5/20/1999	Nitrate	12.8	mg/L	1
Alluvial	R	5/20/1999	Selenium	0.395	mg/L	1
Alluvial	R	5/20/1999	Sulfate	1130	mg/L	1
Alluvial	R	5/20/1999	TDS	2110	mg/L	1
Alluvial	R	5/20/1999	Uranium	0.0294	mg/L	1
Alluvial	R	5/11/2000	Nitrate	13.6	mg/L	1
Alluvial	R	5/11/2000	Selenium	0.4286	mg/L	1
Alluvial	R	5/11/2000	Sulfate	1220	mg/L	1
Alluvial	R	5/11/2000	TDS	2160	mg/L	1
Alluvial	R	5/11/2000	Uranium	0.02076	mg/L	1
Alluvial	R	5/14/2002	Nitrate	14.7	mg/L	1
Alluvial	R	5/14/2002	Selenium	0.505	mg/L	1
Alluvial	R	5/14/2002	Sulfate	1300	mg/L	1
Alluvial	R	5/14/2002	TDS	2210	mg/L	1
Alluvial	R	5/14/2002	Uranium	0.019	mg/L	1
Alluvial	R	5/15/2003	Nitrate	15	mg/L	1
Alluvial	R	5/15/2003	Selenium	0.579	mg/L	1
Alluvial	R	5/15/2003	Sulfate	1350	mg/L	1
Alluvial	R	5/15/2003	TDS	2220	mg/L	1
Alluvial	R	5/15/2003	Uranium	0.0192	mg/L	1
Alluvial	R	5/18/2004	Nitrate	16.4	mg/L	1
Alluvial	R	5/18/2004	Selenium	0.499	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Alluvial	R	5/18/2004	Sulfate	1300	mg/L	1
Alluvial	R	5/18/2004	TDS	2270	mg/L	1
Alluvial	R	5/18/2004	Uranium	0.0198	mg/L	1
Chinle Mixing Zone	CW10	8/2/1988	TDS	1340	mg/L	1
Chinle Mixing Zone	CW10	10/12/1988	TDS	1450	mg/L	1
Chinle Mixing Zone	CW10	8/17/1989	TDS	1070	mg/L	1
Chinle Mixing Zone	CW10	8/6/1990	TDS	1470	mg/L	1
Chinle Mixing Zone	CW10	8/20/1991	TDS	1450	mg/L	1
Chinle Mixing Zone	CW10	9/23/1992	TDS	1490	mg/L	1
Chinle Mixing Zone	CW10	9/13/1993	TDS	1469	mg/L	1
Chinle Mixing Zone	CW10	9/15/1994	TDS	1432	mg/L	1
Chinle Mixing Zone	CW10	9/15/1994	TDS	1437	mg/L	1
Chinle Mixing Zone	CW15	2/7/1995	TDS	1446	mg/L	1
Chinle Mixing Zone	CW15	11/20/1995	TDS	1666	mg/L	1
Chinle Mixing Zone	CW15	10/15/1996	TDS	1610	mg/L	1
Chinle Mixing Zone	CW15	6/3/1997	TDS	1620	mg/L	1
Chinle Mixing Zone	CW15	11/8/1997	TDS	1800	mg/L	1
Chinle Mixing Zone	CW15	5/19/1998	TDS	1540	mg/L	1
Chinle Mixing Zone	CW15	11/5/1998	TDS	1560	mg/L	1
Chinle Mixing Zone	CW15	6/3/1999	TDS	1600	mg/L	1
Chinle Mixing Zone	CW15	6/21/2000	TDS	1520	mg/L	1
Chinle Mixing Zone	CW15	6/6/2001	TDS	1610	mg/L	1
Chinle Mixing Zone	CW15	6/24/2002	TDS	1690	mg/L	1
Chinle Mixing Zone	CW17	2/13/1995	TDS	2584	mg/L	1
Chinle Mixing Zone	CW17	11/28/1995	TDS	3103	mg/L	1
Chinle Mixing Zone	CW17	8/27/1996	TDS	3070	mg/L	1
Chinle Mixing Zone	CW17	6/3/1997	TDS	3170	mg/L	1
Chinle Mixing Zone	CW17	11/8/1997	TDS	3200	mg/L	1
Chinle Mixing Zone	CW17	5/18/1998	TDS	3200	mg/L	1
Chinle Mixing Zone	CW17	11/5/1998	TDS	3216.666667	mg/L	1
Chinle Mixing Zone	CW17	6/1/1999	TDS	1620	mg/L	1
Chinle Mixing Zone	CW17	6/19/2000	TDS	3170	mg/L	1
Chinle Mixing Zone	CW17	6/7/2001	TDS	3000	mg/L	1
Chinle Mixing Zone	CW17	6/27/2002	TDS	3020	mg/L	1
Chinle Mixing Zone	CW24	2/21/1995	TDS	3074	mg/L	1
Chinle Mixing Zone	CW24	8/27/1996	TDS	3020	mg/L	1
Chinle Mixing Zone	CW24	11/8/1997	TDS	3060	mg/L	1
Chinle Mixing Zone	CW24	11/24/1998	TDS	3120	mg/L	1
Chinle Mixing Zone	CW24	10/3/2000	TDS	3080	mg/L	1
Chinle Mixing Zone	CW35	10/12/1995	TDS	1870	mg/L	1
Chinle Mixing Zone	CW35	11/28/1995	TDS	2277	mg/L	1
Chinle Mixing Zone	CW35	8/27/1996	TDS	2290	mg/L	1
Chinle Mixing Zone	CW35	6/3/1997	TDS	2300	mg/L	1
Chinle Mixing Zone	CW35	11/8/1997	TDS	2310	mg/L	1
Chinle Mixing Zone	CW35	5/18/1998	TDS	2285	mg/L	1
Chinle Mixing Zone	CW35	11/5/1998	TDS	2270	mg/L	1
Chinle Mixing Zone	CW35	6/19/2000	TDS	2220	mg/L	1
Chinle Mixing Zone	CW35	6/7/2001	TDS	2250	mg/L	1
Chinle Mixing Zone	CW35	6/27/2002	TDS	2360	mg/L	1
Chinle Mixing Zone	CW36	10/23/1995	TDS	2232	mg/L	1
Chinle Mixing Zone	CW36	10/17/1996	TDS	1940	mg/L	1
Chinle Mixing Zone	CW36	6/3/1997	TDS	1910	mg/L	1
Chinle Mixing Zone	CW36	11/14/1997	TDS	1450	mg/L	1
Chinle Mixing Zone	CW36	5/20/1998	TDS	1900	mg/L	1
Chinle Mixing Zone	CW36	11/3/1998	TDS	1790	mg/L	1
Chinle Mixing Zone	CW37	1/9/1996	TDS	2222	mg/L	1
Chinle Mixing Zone	CW37	1/12/1996	TDS	2176	mg/L	1
Chinle Mixing Zone	CW37	10/16/1996	TDS	2200	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Chinle Mixing Zone	CW37	11/8/1997	TDS	2070	mg/L	1
Chinle Mixing Zone	CW37	11/24/1998	TDS	2070	mg/L	1
Chinle Mixing Zone	CW37	6/2/1999	TDS	2010	mg/L	1
Chinle Mixing Zone	CW37	6/27/2000	TDS	1985	mg/L	1
Chinle Mixing Zone	CW37	6/6/2001	TDS	1970	mg/L	1
Chinle Mixing Zone	CW37	7/1/2002	TDS	1960	mg/L	1
Chinle Mixing Zone	CW39	11/9/1995	TDS	1805	mg/L	1
Chinle Mixing Zone	CW39	10/18/1996	TDS	1720	mg/L	1
Chinle Mixing Zone	CW39	11/24/1998	TDS	1600	mg/L	1
Chinle Mixing Zone	CW43	2/7/1997	TDS	1180	mg/L	1
Chinle Mixing Zone	CW43	4/28/1997	TDS	1080	mg/L	1
Chinle Mixing Zone	CW43	9/30/1997	TDS	1030	mg/L	1
Chinle Mixing Zone	CW43	4/14/1998	TDS	1070	mg/L	1
Chinle Mixing Zone	CW43	9/29/1999	TDS	1040	mg/L	1
Chinle Mixing Zone	CW43	8/29/2000	TDS	1105	mg/L	1
Chinle Mixing Zone	CW43	9/27/2001	TDS	1160	mg/L	1
Chinle Mixing Zone	CW43	10/2/2002	TDS	1230	mg/L	1
Chinle Mixing Zone	CW50	5/29/2003	TDS	1820	mg/L	1
Chinle Mixing Zone	CW52	6/11/2003	TDS	2460	mg/L	1
Chinle Mixing Zone	CW9	4/13/1987	TDS	1320	mg/L	1
Chinle Mixing Zone	CW9	8/2/1988	TDS	1280	mg/L	1
Chinle Mixing Zone	CW9	10/12/1988	TDS	1110	mg/L	1
Chinle Mixing Zone	CW9	10/9/1989	TDS	1240	mg/L	1
Chinle Mixing Zone	CW9	8/6/1990	TDS	1260	mg/L	1
Chinle Mixing Zone	CW9	8/20/1991	TDS	1330	mg/L	1
Chinle Mixing Zone	CW9	9/2/1992	TDS	1250	mg/L	1
Chinle Mixing Zone	CW9	9/13/1993	TDS	1163	mg/L	1
Chinle Mixing Zone	CW9	9/20/1994	TDS	1241	mg/L	1
Chinle Mixing Zone	CW9	9/19/1995	TDS	1266	mg/L	1
Chinle Mixing Zone	CW9	9/4/1997	TDS	1260	mg/L	1
Chinle Mixing Zone	CW9	9/29/1998	TDS	1070	mg/L	1
Chinle Mixing Zone	CW9	9/15/1999	TDS	976	mg/L	1
Chinle Mixing Zone	CW9	8/30/2000	TDS	1230	mg/L	1
Chinle Mixing Zone	WR25	10/12/1995	TDS	2646	mg/L	1
Chinle Mixing Zone	WR25	11/28/1995	TDS	1862	mg/L	1
Chinle Mixing Zone	WR25	8/27/1996	TDS	2920	mg/L	1
Chinle Mixing Zone	WR25	11/8/1997	TDS	2930	mg/L	1
Chinle Mixing Zone	WR25	11/5/1998	TDS	2986.666667	mg/L	1
Chinle Mixing Zone	WR25	10/3/2000	TDS	2940	mg/L	1
Chinle Mixing Zone	CW10	4/9/1987	Uranium	0.01696	mg/L	1
Chinle Mixing Zone	CW10	4/9/1987	Selenium	0.03	mg/L	1
Chinle Mixing Zone	CW10	4/9/1987	Molybdenum	0.01	mg/L	1
Chinle Mixing Zone	CW10	4/9/1987	Nitrate	3.6	mg/L	1
Chinle Mixing Zone	CW10	4/9/1987	Sulfate	760	mg/L	1
Chinle Mixing Zone	CW10	8/2/1988	Uranium	0.03392	mg/L	1
Chinle Mixing Zone	CW10	8/2/1988	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW10	8/2/1988	Molybdenum	0.01	mg/L	1
Chinle Mixing Zone	CW10	8/2/1988	Sulfate	709	mg/L	1
Chinle Mixing Zone	CW10	8/2/1988	Nitrate	0.6	mg/L	1
Chinle Mixing Zone	CW10	10/12/1988	Uranium	0.03392	mg/L	1
Chinle Mixing Zone	CW10	10/12/1988	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW10	10/12/1988	Molybdenum	0.01	mg/L	1
Chinle Mixing Zone	CW10	10/12/1988	Sulfate	719	mg/L	1
Chinle Mixing Zone	CW10	10/12/1988	Nitrate	0.6	mg/L	1
Chinle Mixing Zone	CW10	8/17/1989	Uranium	0.02544	mg/L	1
Chinle Mixing Zone	CW10	8/17/1989	Selenium	0.01	mg/L	0
Chinle Mixing Zone	CW10	8/17/1989	Molybdenum	0.01	mg/L	0
Chinle Mixing Zone	CW10	8/17/1989	Sulfate	780	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Chinle Mixing Zone	CW10	8/17/1989	Nitrate	0.2	mg/L	1
Chinle Mixing Zone	CW10	8/6/1990	Uranium	0.03392	mg/L	1
Chinle Mixing Zone	CW10	8/6/1990	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW10	8/6/1990	Molybdenum	0.02	mg/L	1
Chinle Mixing Zone	CW10	8/6/1990	Sulfate	741	mg/L	1
Chinle Mixing Zone	CW10	8/6/1990	Nitrate	1.9	mg/L	1
Chinle Mixing Zone	CW10	8/20/1991	Uranium	0.05088	mg/L	1
Chinle Mixing Zone	CW10	8/20/1991	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW10	8/20/1991	Molybdenum	0.01	mg/L	0
Chinle Mixing Zone	CW10	8/20/1991	Sulfate	743	mg/L	1
Chinle Mixing Zone	CW10	8/20/1991	Nitrate	1.9	mg/L	1
Chinle Mixing Zone	CW10	9/23/1992	Uranium	0.00848	mg/L	1
Chinle Mixing Zone	CW10	9/23/1992	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW10	9/23/1992	Molybdenum	0.01	mg/L	0
Chinle Mixing Zone	CW10	9/23/1992	Sulfate	760	mg/L	1
Chinle Mixing Zone	CW10	9/23/1992	Nitrate	0.64	mg/L	1
Chinle Mixing Zone	CW10	9/13/1993	Uranium	0.012	mg/L	1
Chinle Mixing Zone	CW10	9/13/1993	Selenium	0.001	mg/L	0
Chinle Mixing Zone	CW10	9/13/1993	Molybdenum	0.05	mg/L	0
Chinle Mixing Zone	CW10	9/13/1993	Sulfate	678	mg/L	1
Chinle Mixing Zone	CW10	9/13/1993	Nitrate	0.1	mg/L	1
Chinle Mixing Zone	CW10	9/15/1994	Uranium	0.026	mg/L	1
Chinle Mixing Zone	CW10	9/15/1994	Selenium	0.007	mg/L	1
Chinle Mixing Zone	CW10	9/15/1994	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW10	9/15/1994	Sulfate	724	mg/L	1
Chinle Mixing Zone	CW10	9/15/1994	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW10	9/15/1994	Uranium	0.027	mg/L	1
Chinle Mixing Zone	CW10	9/15/1994	Selenium	0.005	mg/L	1
Chinle Mixing Zone	CW10	9/15/1994	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW10	9/15/1994	Sulfate	724	mg/L	1
Chinle Mixing Zone	CW10	9/15/1994	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW15	2/7/1995	Uranium	0.015	mg/L	1
Chinle Mixing Zone	CW15	2/7/1995	Selenium	0.021	mg/L	1
Chinle Mixing Zone	CW15	2/7/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW15	2/7/1995	Sulfate	777	mg/L	1
Chinle Mixing Zone	CW15	2/7/1995	Nitrate	0.65	mg/L	1
Chinle Mixing Zone	CW15	11/20/1995	Uranium	0.019	mg/L	1
Chinle Mixing Zone	CW15	11/20/1995	Selenium	0.03	mg/L	1
Chinle Mixing Zone	CW15	11/20/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW15	11/20/1995	Sulfate	889	mg/L	1
Chinle Mixing Zone	CW15	11/20/1995	Nitrate	3.58	mg/L	1
Chinle Mixing Zone	CW15	10/15/1996	Uranium	0.0235	mg/L	1
Chinle Mixing Zone	CW15	10/15/1996	Selenium	0.029	mg/L	1
Chinle Mixing Zone	CW15	10/15/1996	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW15	10/15/1996	Sulfate	853	mg/L	1
Chinle Mixing Zone	CW15	10/15/1996	Nitrate	3.78	mg/L	1
Chinle Mixing Zone	CW15	6/3/1997	Uranium	0.045	mg/L	1
Chinle Mixing Zone	CW15	6/3/1997	Selenium	0.025	mg/L	1
Chinle Mixing Zone	CW15	6/3/1997	Sulfate	880	mg/L	1
Chinle Mixing Zone	CW15	11/8/1997	Uranium	0.024	mg/L	1
Chinle Mixing Zone	CW15	11/8/1997	Selenium	0.042	mg/L	1
Chinle Mixing Zone	CW15	11/8/1997	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW15	11/8/1997	Sulfate	982	mg/L	1
Chinle Mixing Zone	CW15	11/8/1997	Nitrate	4.67	mg/L	1
Chinle Mixing Zone	CW15	5/19/1998	Uranium	0.0315	mg/L	1
Chinle Mixing Zone	CW15	5/19/1998	Selenium	0.015	mg/L	1
Chinle Mixing Zone	CW15	5/19/1998	Sulfate	870	mg/L	1
Chinle Mixing Zone	CW15	11/5/1998	Uranium	0.030666667	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Chinle Mixing Zone	CW15	11/5/1998	Selenium	0.011	mg/L	1
Chinle Mixing Zone	CW15	11/5/1998	Molybdenum	0.023333333	mg/L	0
Chinle Mixing Zone	CW15	11/5/1998	Sulfate	834.3333333	mg/L	1
Chinle Mixing Zone	CW15	11/5/1998	Nitrate	1.043333333	mg/L	1
Chinle Mixing Zone	CW15	6/3/1999	Uranium	0.033	mg/L	1
Chinle Mixing Zone	CW15	6/3/1999	Selenium	0.014	mg/L	1
Chinle Mixing Zone	CW15	6/3/1999	Sulfate	835	mg/L	1
Chinle Mixing Zone	CW15	6/21/2000	Uranium	0.05014	mg/L	1
Chinle Mixing Zone	CW15	6/21/2000	Selenium	0.03614	mg/L	1
Chinle Mixing Zone	CW15	6/21/2000	Sulfate	854	mg/L	1
Chinle Mixing Zone	CW15	6/6/2001	Uranium	0.0209	mg/L	1
Chinle Mixing Zone	CW15	6/6/2001	Selenium	0.031	mg/L	1
Chinle Mixing Zone	CW15	6/6/2001	Sulfate	853	mg/L	1
Chinle Mixing Zone	CW15	6/24/2002	Uranium	0.017	mg/L	1
Chinle Mixing Zone	CW15	6/24/2002	Selenium	0.035	mg/L	1
Chinle Mixing Zone	CW15	6/24/2002	Sulfate	838	mg/L	1
Chinle Mixing Zone	CW17	2/13/1995	Uranium	0.121	mg/L	1
Chinle Mixing Zone	CW17	2/13/1995	Selenium	0.069	mg/L	1
Chinle Mixing Zone	CW17	2/13/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW17	2/13/1995	Sulfate	1503	mg/L	1
Chinle Mixing Zone	CW17	2/13/1995	Nitrate	13.4	mg/L	1
Chinle Mixing Zone	CW17	11/28/1995	Uranium	0.1256	mg/L	1
Chinle Mixing Zone	CW17	11/28/1995	Selenium	0.069	mg/L	1
Chinle Mixing Zone	CW17	11/28/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW17	11/28/1995	Sulfate	1675	mg/L	1
Chinle Mixing Zone	CW17	11/28/1995	Nitrate	15	mg/L	1
Chinle Mixing Zone	CW17	8/27/1996	Uranium	0.069	mg/L	1
Chinle Mixing Zone	CW17	8/27/1996	Selenium	0.116	mg/L	1
Chinle Mixing Zone	CW17	8/27/1996	Molybdenum	0.06	mg/L	1
Chinle Mixing Zone	CW17	8/27/1996	Sulfate	1650	mg/L	1
Chinle Mixing Zone	CW17	8/27/1996	Nitrate	15.3	mg/L	1
Chinle Mixing Zone	CW17	6/3/1997	Uranium	0.137	mg/L	1
Chinle Mixing Zone	CW17	6/3/1997	Selenium	0.085	mg/L	1
Chinle Mixing Zone	CW17	6/3/1997	Molybdenum	0.09	mg/L	1
Chinle Mixing Zone	CW17	6/3/1997	Sulfate	1660	mg/L	1
Chinle Mixing Zone	CW17	11/8/1997	Uranium	0.153	mg/L	1
Chinle Mixing Zone	CW17	11/8/1997	Selenium	0.074	mg/L	1
Chinle Mixing Zone	CW17	11/8/1997	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW17	11/8/1997	Sulfate	1700	mg/L	1
Chinle Mixing Zone	CW17	11/8/1997	Nitrate	14.9	mg/L	1
Chinle Mixing Zone	CW17	5/18/1998	Uranium	0.137	mg/L	1
Chinle Mixing Zone	CW17	5/18/1998	Selenium	0.076	mg/L	1
Chinle Mixing Zone	CW17	5/18/1998	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW17	5/18/1998	Sulfate	1830	mg/L	1
Chinle Mixing Zone	CW17	11/5/1998	Uranium	0.140333333	mg/L	1
Chinle Mixing Zone	CW17	11/5/1998	Selenium	0.067666667	mg/L	1
Chinle Mixing Zone	CW17	11/5/1998	Molybdenum	0.04	mg/L	0
Chinle Mixing Zone	CW17	11/5/1998	Sulfate	1760	mg/L	1
Chinle Mixing Zone	CW17	11/5/1998	Nitrate	15.33333333	mg/L	1
Chinle Mixing Zone	CW17	6/1/1999	Uranium	0.141	mg/L	1
Chinle Mixing Zone	CW17	6/1/1999	Selenium	0.073	mg/L	1
Chinle Mixing Zone	CW17	6/1/1999	Sulfate	1880	mg/L	1
Chinle Mixing Zone	CW17	6/19/2000	Uranium	0.175	mg/L	1
Chinle Mixing Zone	CW17	6/19/2000	Selenium	0.08079	mg/L	1
Chinle Mixing Zone	CW17	6/19/2000	Sulfate	1850	mg/L	1
Chinle Mixing Zone	CW17	6/7/2001	Uranium	0.14	mg/L	1
Chinle Mixing Zone	CW17	6/7/2001	Selenium	0.071	mg/L	1
Chinle Mixing Zone	CW17	6/7/2001	Sulfate	1640	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Chinle Mixing Zone	CW17	6/27/2002	Uranium	0.131	mg/L	1
Chinle Mixing Zone	CW17	6/27/2002	Selenium	0.068	mg/L	1
Chinle Mixing Zone	CW17	6/27/2002	Sulfate	1680	mg/L	1
Chinle Mixing Zone	CW24	2/21/1995	Uranium	0.101	mg/L	1
Chinle Mixing Zone	CW24	2/21/1995	Selenium	0.062	mg/L	1
Chinle Mixing Zone	CW24	2/21/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW24	2/21/1995	Sulfate	1647	mg/L	1
Chinle Mixing Zone	CW24	2/21/1995	Nitrate	12.3	mg/L	1
Chinle Mixing Zone	CW24	8/27/1996	Uranium	0.119	mg/L	1
Chinle Mixing Zone	CW24	8/27/1996	Selenium	0.034	mg/L	1
Chinle Mixing Zone	CW24	8/27/1996	Molybdenum	0.04	mg/L	1
Chinle Mixing Zone	CW24	8/27/1996	Sulfate	1670	mg/L	1
Chinle Mixing Zone	CW24	8/27/1996	Nitrate	8.37	mg/L	1
Chinle Mixing Zone	CW24	11/8/1997	Uranium	0.129	mg/L	1
Chinle Mixing Zone	CW24	11/8/1997	Selenium	0.046	mg/L	1
Chinle Mixing Zone	CW24	11/8/1997	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW24	11/8/1997	Sulfate	1750	mg/L	1
Chinle Mixing Zone	CW24	11/24/1998	Uranium	0.154	mg/L	1
Chinle Mixing Zone	CW24	11/24/1998	Selenium	0.064	mg/L	1
Chinle Mixing Zone	CW24	11/24/1998	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW24	11/24/1998	Sulfate	1750	mg/L	1
Chinle Mixing Zone	CW24	10/3/2000	Uranium	0.1276	mg/L	1
Chinle Mixing Zone	CW24	10/3/2000	Selenium	0.07977	mg/L	1
Chinle Mixing Zone	CW24	10/3/2000	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW24	10/3/2000	Sulfate	1410	mg/L	1
Chinle Mixing Zone	CW35	10/12/1995	Uranium	0.151	mg/L	1
Chinle Mixing Zone	CW35	10/12/1995	Selenium	0.061	mg/L	1
Chinle Mixing Zone	CW35	10/12/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW35	10/12/1995	Sulfate	871	mg/L	1
Chinle Mixing Zone	CW35	10/12/1995	Nitrate	8.37	mg/L	1
Chinle Mixing Zone	CW35	11/28/1995	Uranium	0.1408	mg/L	1
Chinle Mixing Zone	CW35	11/28/1995	Selenium	0.012	mg/L	1
Chinle Mixing Zone	CW35	11/28/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW35	11/28/1995	Sulfate	1187	mg/L	1
Chinle Mixing Zone	CW35	11/28/1995	Nitrate	1.16	mg/L	1
Chinle Mixing Zone	CW35	8/27/1996	Uranium	0.172	mg/L	1
Chinle Mixing Zone	CW35	8/27/1996	Selenium	0.087	mg/L	1
Chinle Mixing Zone	CW35	8/27/1996	Molybdenum	0.03	mg/L	1
Chinle Mixing Zone	CW35	8/27/1996	Sulfate	1240	mg/L	1
Chinle Mixing Zone	CW35	8/27/1996	Nitrate	2.51	mg/L	1
Chinle Mixing Zone	CW35	6/3/1997	Uranium	0.189	mg/L	1
Chinle Mixing Zone	CW35	6/3/1997	Selenium	0.032	mg/L	1
Chinle Mixing Zone	CW35	6/3/1997	Sulfate	1260	mg/L	1
Chinle Mixing Zone	CW35	11/8/1997	Uranium	0.201	mg/L	1
Chinle Mixing Zone	CW35	11/8/1997	Selenium	0.032	mg/L	1
Chinle Mixing Zone	CW35	11/8/1997	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW35	11/8/1997	Sulfate	1200	mg/L	1
Chinle Mixing Zone	CW35	11/8/1997	Nitrate	2.87	mg/L	1
Chinle Mixing Zone	CW35	5/18/1998	Uranium	0.175	mg/L	1
Chinle Mixing Zone	CW35	5/18/1998	Selenium	0.034	mg/L	1
Chinle Mixing Zone	CW35	5/18/1998	Sulfate	1240	mg/L	1
Chinle Mixing Zone	CW35	11/5/1998	Uranium	0.222	mg/L	1
Chinle Mixing Zone	CW35	11/5/1998	Selenium	0.041	mg/L	1
Chinle Mixing Zone	CW35	11/5/1998	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW35	11/5/1998	Sulfate	1170	mg/L	1
Chinle Mixing Zone	CW35	11/5/1998	Nitrate	3.35	mg/L	1
Chinle Mixing Zone	CW35	6/1/1999	Uranium	0.185	mg/L	1
Chinle Mixing Zone	CW35	6/1/1999	Selenium	0.52	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Chinle Mixing Zone	CW35	6/1/1999	Sulfate	626	mg/L	1
Chinle Mixing Zone	CW35	6/19/2000	Uranium	0.2312	mg/L	1
Chinle Mixing Zone	CW35	6/19/2000	Selenium	0.06609	mg/L	1
Chinle Mixing Zone	CW35	6/19/2000	Sulfate	1260	mg/L	1
Chinle Mixing Zone	CW35	6/7/2001	Uranium	0.172	mg/L	1
Chinle Mixing Zone	CW35	6/7/2001	Selenium	0.061	mg/L	1
Chinle Mixing Zone	CW35	6/7/2001	Sulfate	1110	mg/L	1
Chinle Mixing Zone	CW35	6/27/2002	Uranium	0.181	mg/L	1
Chinle Mixing Zone	CW35	6/27/2002	Selenium	0.068	mg/L	1
Chinle Mixing Zone	CW35	6/27/2002	Sulfate	1220	mg/L	1
Chinle Mixing Zone	CW36	10/23/1995	Uranium	0.013	mg/L	1
Chinle Mixing Zone	CW36	10/23/1995	Selenium	0.035	mg/L	1
Chinle Mixing Zone	CW36	10/23/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW36	10/23/1995	Sulfate	1262	mg/L	1
Chinle Mixing Zone	CW36	10/23/1995	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW36	10/17/1996	Uranium	0.0046	mg/L	1
Chinle Mixing Zone	CW36	10/17/1996	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW36	10/17/1996	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW36	10/17/1996	Sulfate	1050	mg/L	1
Chinle Mixing Zone	CW36	10/17/1996	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW36	6/3/1997	Uranium	0.002	mg/L	1
Chinle Mixing Zone	CW36	6/3/1997	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW36	6/3/1997	Sulfate	1070	mg/L	1
Chinle Mixing Zone	CW36	11/14/1997	Uranium	0.0052	mg/L	1
Chinle Mixing Zone	CW36	11/14/1997	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW36	11/14/1997	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW36	11/14/1997	Sulfate	742	mg/L	1
Chinle Mixing Zone	CW36	11/14/1997	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW36	5/20/1998	Uranium	0.0061	mg/L	1
Chinle Mixing Zone	CW36	5/20/1998	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW36	5/20/1998	Sulfate	1080	mg/L	1
Chinle Mixing Zone	CW36	11/3/1998	Uranium	0.003	mg/L	1
Chinle Mixing Zone	CW36	11/3/1998	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW36	11/3/1998	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW36	11/3/1998	Sulfate	940	mg/L	1
Chinle Mixing Zone	CW36	11/3/1998	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW37	1/9/1996	Uranium	0.032	mg/L	1
Chinle Mixing Zone	CW37	1/9/1996	Selenium	0.096	mg/L	1
Chinle Mixing Zone	CW37	1/9/1996	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW37	1/9/1996	Sulfate	1179	mg/L	1
Chinle Mixing Zone	CW37	1/9/1996	Nitrate	6.83	mg/L	1
Chinle Mixing Zone	CW37	1/12/1996	Uranium	0.024	mg/L	1
Chinle Mixing Zone	CW37	1/12/1996	Selenium	0.074	mg/L	1
Chinle Mixing Zone	CW37	1/12/1996	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW37	1/12/1996	Sulfate	1206	mg/L	1
Chinle Mixing Zone	CW37	1/12/1996	Nitrate	7.11	mg/L	1
Chinle Mixing Zone	CW37	10/16/1996	Uranium	0.0244	mg/L	1
Chinle Mixing Zone	CW37	10/16/1996	Selenium	0.094	mg/L	1
Chinle Mixing Zone	CW37	10/16/1996	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW37	10/16/1996	Sulfate	1207	mg/L	1
Chinle Mixing Zone	CW37	10/16/1996	Nitrate	8.22	mg/L	1
Chinle Mixing Zone	CW37	11/8/1997	Uranium	0.028	mg/L	1
Chinle Mixing Zone	CW37	11/8/1997	Selenium	0.081	mg/L	1
Chinle Mixing Zone	CW37	11/8/1997	Sulfate	1090	mg/L	1
Chinle Mixing Zone	CW37	11/24/1998	Uranium	0.028	mg/L	1
Chinle Mixing Zone	CW37	11/24/1998	Selenium	0.079	mg/L	1
Chinle Mixing Zone	CW37	11/24/1998	Sulfate	1130	mg/L	1
Chinle Mixing Zone	CW37	6/2/1999	Uranium	0.027	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Chinle Mixing Zone	CW37	6/2/1999	Selenium	0.086	mg/L	1
Chinle Mixing Zone	CW37	6/2/1999	Sulfate	1140	mg/L	1
Chinle Mixing Zone	CW37	6/27/2000	Uranium	0.02879	mg/L	1
Chinle Mixing Zone	CW37	6/27/2000	Selenium	0.07739	mg/L	1
Chinle Mixing Zone	CW37	6/27/2000	Sulfate	1065	mg/L	1
Chinle Mixing Zone	CW37	6/6/2001	Uranium	0.03	mg/L	1
Chinle Mixing Zone	CW37	6/6/2001	Selenium	0.082	mg/L	1
Chinle Mixing Zone	CW37	6/6/2001	Sulfate	1050	mg/L	1
Chinle Mixing Zone	CW37	7/1/2002	Uranium	0.028	mg/L	1
Chinle Mixing Zone	CW37	7/1/2002	Selenium	0.08	mg/L	1
Chinle Mixing Zone	CW37	7/1/2002	Sulfate	1020	mg/L	1
Chinle Mixing Zone	CW39	11/9/1995	Uranium	0.0173	mg/L	1
Chinle Mixing Zone	CW39	11/9/1995	Selenium	0.085	mg/L	1
Chinle Mixing Zone	CW39	11/9/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW39	11/9/1995	Sulfate	972	mg/L	1
Chinle Mixing Zone	CW39	11/9/1995	Nitrate	5.73	mg/L	1
Chinle Mixing Zone	CW39	10/18/1996	Uranium	0.0218	mg/L	1
Chinle Mixing Zone	CW39	10/18/1996	Selenium	0.031	mg/L	1
Chinle Mixing Zone	CW39	10/18/1996	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW39	10/18/1996	Sulfate	896	mg/L	1
Chinle Mixing Zone	CW39	10/18/1996	Nitrate	4.58	mg/L	1
Chinle Mixing Zone	CW39	11/24/1998	Uranium	0.045	mg/L	1
Chinle Mixing Zone	CW39	11/24/1998	Selenium	0.063	mg/L	1
Chinle Mixing Zone	CW39	11/24/1998	Sulfate	836	mg/L	1
Chinle Mixing Zone	CW43	2/7/1997	Uranium	0.025	mg/L	1
Chinle Mixing Zone	CW43	2/7/1997	Selenium	0.013	mg/L	1
Chinle Mixing Zone	CW43	2/7/1997	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW43	2/7/1997	Sulfate	490	mg/L	1
Chinle Mixing Zone	CW43	2/7/1997	Nitrate	0.23	mg/L	1
Chinle Mixing Zone	CW43	4/28/1997	Uranium	0.024	mg/L	1
Chinle Mixing Zone	CW43	4/28/1997	Selenium	0.009	mg/L	1
Chinle Mixing Zone	CW43	4/28/1997	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW43	4/28/1997	Sulfate	444	mg/L	1
Chinle Mixing Zone	CW43	4/28/1997	Nitrate	1.61	mg/L	1
Chinle Mixing Zone	CW43	9/30/1997	Uranium	0.021	mg/L	1
Chinle Mixing Zone	CW43	9/30/1997	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW43	9/30/1997	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW43	9/30/1997	Sulfate	444	mg/L	1
Chinle Mixing Zone	CW43	4/14/1998	Uranium	0.0245	mg/L	1
Chinle Mixing Zone	CW43	4/14/1998	Selenium	0.012	mg/L	1
Chinle Mixing Zone	CW43	4/14/1998	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW43	4/14/1998	Sulfate	460	mg/L	1
Chinle Mixing Zone	CW43	4/14/1998	Nitrate	3.71	mg/L	1
Chinle Mixing Zone	CW43	9/29/1999	Uranium	0.0315	mg/L	1
Chinle Mixing Zone	CW43	9/29/1999	Selenium	0.013	mg/L	1
Chinle Mixing Zone	CW43	9/29/1999	Sulfate	433	mg/L	1
Chinle Mixing Zone	CW43	8/29/2000	Uranium	0.02585	mg/L	1
Chinle Mixing Zone	CW43	8/29/2000	Selenium	0.0185	mg/L	1
Chinle Mixing Zone	CW43	8/29/2000	Sulfate	409	mg/L	1
Chinle Mixing Zone	CW43	9/27/2001	Uranium	0.0299	mg/L	1
Chinle Mixing Zone	CW43	9/27/2001	Selenium	0.014	mg/L	1
Chinle Mixing Zone	CW43	9/27/2001	Sulfate	450	mg/L	1
Chinle Mixing Zone	CW43	10/2/2002	Uranium	0.03	mg/L	1
Chinle Mixing Zone	CW43	10/2/2002	Selenium	0.023	mg/L	1
Chinle Mixing Zone	CW43	10/2/2002	Sulfate	538	mg/L	1
Chinle Mixing Zone	CW50	5/29/2003	Uranium	0.0417	mg/L	1
Chinle Mixing Zone	CW50	5/29/2003	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW50	5/29/2003	Molybdenum	0.03	mg/L	0

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Chinle Mixing Zone	CW50	5/29/2003	Sulfate	934	mg/L	1
Chinle Mixing Zone	CW50	5/29/2003	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW52	6/11/2003	Uranium	0.0412	mg/L	1
Chinle Mixing Zone	CW52	6/11/2003	Selenium	0.017	mg/L	1
Chinle Mixing Zone	CW52	6/11/2003	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW52	6/11/2003	Sulfate	1050	mg/L	1
Chinle Mixing Zone	CW52	6/11/2003	Nitrate	0.8	mg/L	1
Chinle Mixing Zone	CW9	4/13/1987	Uranium	0.01	mg/L	0
Chinle Mixing Zone	CW9	4/13/1987	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW9	4/13/1987	Molybdenum	0.01	mg/L	1
Chinle Mixing Zone	CW9	4/13/1987	Sulfate	797	mg/L	1
Chinle Mixing Zone	CW9	4/13/1987	Nitrate	1.1	mg/L	1
Chinle Mixing Zone	CW9	8/2/1988	Uranium	0.02544	mg/L	1
Chinle Mixing Zone	CW9	8/2/1988	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW9	8/2/1988	Molybdenum	0.02	mg/L	1
Chinle Mixing Zone	CW9	8/2/1988	Sulfate	671	mg/L	1
Chinle Mixing Zone	CW9	8/2/1988	Nitrate	1.5	mg/L	1
Chinle Mixing Zone	CW9	10/12/1988	Uranium	0.00848	mg/L	1
Chinle Mixing Zone	CW9	10/12/1988	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW9	10/12/1988	Molybdenum	0.06	mg/L	1
Chinle Mixing Zone	CW9	10/12/1988	Sulfate	750	mg/L	1
Chinle Mixing Zone	CW9	10/12/1988	Nitrate	0.3	mg/L	1
Chinle Mixing Zone	CW9	10/9/1989	Uranium	0.02544	mg/L	1
Chinle Mixing Zone	CW9	10/9/1989	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW9	10/9/1989	Molybdenum	0.11	mg/L	1
Chinle Mixing Zone	CW9	10/9/1989	Sulfate	923	mg/L	1
Chinle Mixing Zone	CW9	10/9/1989	Nitrate	0.2	mg/L	1
Chinle Mixing Zone	CW9	8/6/1990	Uranium	0.01696	mg/L	1
Chinle Mixing Zone	CW9	8/6/1990	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW9	8/6/1990	Molybdenum	0.1	mg/L	1
Chinle Mixing Zone	CW9	8/6/1990	Sulfate	718	mg/L	1
Chinle Mixing Zone	CW9	8/6/1990	Nitrate	1.7	mg/L	1
Chinle Mixing Zone	CW9	8/20/1991	Uranium	0.01696	mg/L	1
Chinle Mixing Zone	CW9	8/20/1991	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW9	8/20/1991	Molybdenum	0.08	mg/L	1
Chinle Mixing Zone	CW9	8/20/1991	Sulfate	664	mg/L	1
Chinle Mixing Zone	CW9	8/20/1991	Nitrate	3	mg/L	1
Chinle Mixing Zone	CW9	9/2/1992	Uranium	0.00848	mg/L	0
Chinle Mixing Zone	CW9	9/2/1992	Selenium	0.01	mg/L	1
Chinle Mixing Zone	CW9	9/2/1992	Molybdenum	0.09	mg/L	1
Chinle Mixing Zone	CW9	9/2/1992	Sulfate	680	mg/L	1
Chinle Mixing Zone	CW9	9/2/1992	Nitrate	0.6	mg/L	1
Chinle Mixing Zone	CW9	9/13/1993	Uranium	0.006	mg/L	1
Chinle Mixing Zone	CW9	9/13/1993	Selenium	0.068	mg/L	1
Chinle Mixing Zone	CW9	9/13/1993	Molybdenum	0.1	mg/L	1
Chinle Mixing Zone	CW9	9/13/1993	Sulfate	584	mg/L	1
Chinle Mixing Zone	CW9	9/13/1993	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW9	9/20/1994	Uranium	0.052	mg/L	1
Chinle Mixing Zone	CW9	9/20/1994	Selenium	0.006	mg/L	1
Chinle Mixing Zone	CW9	9/20/1994	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	CW9	9/20/1994	Sulfate	731	mg/L	1
Chinle Mixing Zone	CW9	9/20/1994	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW9	9/19/1995	Uranium	0.0554	mg/L	1
Chinle Mixing Zone	CW9	9/19/1995	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW9	9/19/1995	Molybdenum	0.1	mg/L	1
Chinle Mixing Zone	CW9	9/19/1995	Sulfate	676	mg/L	1
Chinle Mixing Zone	CW9	9/19/1995	Nitrate	0.37	mg/L	1
Chinle Mixing Zone	CW9	9/4/1997	Uranium	0.005	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Chinle Mixing Zone	CW9	9/4/1997	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW9	9/4/1997	Molybdenum	0.03	mg/L	1
Chinle Mixing Zone	CW9	9/4/1997	Sulfate	640	mg/L	1
Chinle Mixing Zone	CW9	9/4/1997	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW9	9/29/1998	Uranium	0.005	mg/L	1
Chinle Mixing Zone	CW9	9/29/1998	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW9	9/29/1998	Molybdenum	0.07	mg/L	1
Chinle Mixing Zone	CW9	9/29/1998	Sulfate	532	mg/L	1
Chinle Mixing Zone	CW9	9/29/1998	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW9	9/15/1999	Uranium	0.0111	mg/L	1
Chinle Mixing Zone	CW9	9/15/1999	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW9	9/15/1999	Molybdenum	0.08	mg/L	1
Chinle Mixing Zone	CW9	9/15/1999	Sulfate	485	mg/L	1
Chinle Mixing Zone	CW9	9/15/1999	Nitrate	0.1	mg/L	0
Chinle Mixing Zone	CW9	8/30/2000	Uranium	0.005114	mg/L	1
Chinle Mixing Zone	CW9	8/30/2000	Selenium	0.005	mg/L	0
Chinle Mixing Zone	CW9	8/30/2000	Molybdenum	0.04	mg/L	1
Chinle Mixing Zone	CW9	8/30/2000	Sulfate	576	mg/L	1
Chinle Mixing Zone	CW9	8/30/2000	Nitrate	0.13	mg/L	1
Chinle Mixing Zone	WR25	10/12/1995	Uranium	0.116	mg/L	1
Chinle Mixing Zone	WR25	10/12/1995	Selenium	0.145	mg/L	1
Chinle Mixing Zone	WR25	10/12/1995	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	WR25	10/12/1995	Sulfate	1476	mg/L	1
Chinle Mixing Zone	WR25	10/12/1995	Nitrate	16.7	mg/L	1
Chinle Mixing Zone	WR25	11/28/1995	Uranium	0.1691	mg/L	1
Chinle Mixing Zone	WR25	11/28/1995	Selenium	0.017	mg/L	1
Chinle Mixing Zone	WR25	11/28/1995	Molybdenum	0.13	mg/L	1
Chinle Mixing Zone	WR25	11/28/1995	Sulfate	678	mg/L	1
Chinle Mixing Zone	WR25	11/28/1995	Nitrate	1.55	mg/L	1
Chinle Mixing Zone	WR25	8/27/1996	Uranium	0.068	mg/L	1
Chinle Mixing Zone	WR25	8/27/1996	Selenium	0.236	mg/L	1
Chinle Mixing Zone	WR25	8/27/1996	Molybdenum	0.07	mg/L	1
Chinle Mixing Zone	WR25	8/27/1996	Sulfate	1590	mg/L	1
Chinle Mixing Zone	WR25	8/27/1996	Nitrate	21.8	mg/L	1
Chinle Mixing Zone	WR25	11/8/1997	Uranium	0.078	mg/L	1
Chinle Mixing Zone	WR25	11/8/1997	Selenium	0.152	mg/L	1
Chinle Mixing Zone	WR25	11/8/1997	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	WR25	11/8/1997	Sulfate	1700	mg/L	1
Chinle Mixing Zone	WR25	11/5/1998	Uranium	0.080666667	mg/L	1
Chinle Mixing Zone	WR25	11/5/1998	Selenium	0.134666667	mg/L	1
Chinle Mixing Zone	WR25	11/5/1998	Molybdenum	0.023333333	mg/L	0
Chinle Mixing Zone	WR25	11/5/1998	Sulfate	1670	mg/L	1
Chinle Mixing Zone	WR25	10/3/2000	Uranium	0.07402	mg/L	1
Chinle Mixing Zone	WR25	10/3/2000	Selenium	0.157	mg/L	1
Chinle Mixing Zone	WR25	10/3/2000	Molybdenum	0.03	mg/L	0
Chinle Mixing Zone	WR25	10/3/2000	Sulfate	1330	mg/L	1
Lower Chinle Non-mixing Zone	CW26	4/4/1995	TDS	1345	mg/L	1
Lower Chinle Non-mixing Zone	CW26	4/4/1995	TDS	1356	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/27/1995	TDS	1317	mg/L	1
Lower Chinle Non-mixing Zone	CW26	8/28/1996	TDS	1540	mg/L	1
Lower Chinle Non-mixing Zone	CW26	5/30/1997	TDS	1510	mg/L	1
Lower Chinle Non-mixing Zone	CW26	5/20/1998	TDS	1490	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/4/1998	TDS	1650	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/3/1999	TDS	1635	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/21/2000	TDS	1380	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/6/2001	TDS	1380	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/26/2002	TDS	1410	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/5/1995	TDS	1417	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Lower Chinle Non-mixing Zone	CW29	6/7/1995	TDS	1059	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/9/1995	TDS	1182	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/13/1995	TDS	1148	mg/L	1
Lower Chinle Non-mixing Zone	CW29	10/14/1996	TDS	1160	mg/L	1
Lower Chinle Non-mixing Zone	CW29	5/30/1997	TDS	1100	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/8/1997	TDS	1130	mg/L	1
Lower Chinle Non-mixing Zone	CW29	5/19/1998	TDS	1080	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/5/1998	TDS	1080	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/3/1999	TDS	1140	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/21/2000	TDS	1100	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/6/2001	TDS	1050	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/24/2002	TDS	1080	mg/L	1
Lower Chinle Non-mixing Zone	CW31	9/15/1995	TDS	3551	mg/L	1
Lower Chinle Non-mixing Zone	CW31	10/17/1996	TDS	2420	mg/L	1
Lower Chinle Non-mixing Zone	CW31	11/14/1997	TDS	1520	mg/L	1
Lower Chinle Non-mixing Zone	CW31	11/19/1998	TDS	1580	mg/L	1
Lower Chinle Non-mixing Zone	CW31	6/2/1999	TDS	3140	mg/L	1
Lower Chinle Non-mixing Zone	CW31	6/21/2000	TDS	1850	mg/L	1
Lower Chinle Non-mixing Zone	CW31	6/7/2001	TDS	2030	mg/L	1
Lower Chinle Non-mixing Zone	CW31	6/26/2002	TDS	1800	mg/L	1
Lower Chinle Non-mixing Zone	CW32	9/13/1995	TDS	1662	mg/L	1
Lower Chinle Non-mixing Zone	CW32	12/11/1995	TDS	2842	mg/L	1
Lower Chinle Non-mixing Zone	CW32	12/15/1995	TDS	1050	mg/L	1
Lower Chinle Non-mixing Zone	CW32	10/17/1996	TDS	3930	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/3/1997	TDS	4070	mg/L	1
Lower Chinle Non-mixing Zone	CW32	11/18/1997	TDS	4150	mg/L	1
Lower Chinle Non-mixing Zone	CW32	5/20/1998	TDS	4090	mg/L	1
Lower Chinle Non-mixing Zone	CW32	11/19/1998	TDS	4140	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/21/2000	TDS	3910	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/7/2001	TDS	4180	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/26/2002	TDS	4180	mg/L	1
Lower Chinle Non-mixing Zone	CW33	9/8/1995	TDS	3692	mg/L	1
Lower Chinle Non-mixing Zone	CW33	9/12/1995	TDS	4059	mg/L	1
Lower Chinle Non-mixing Zone	CW33	10/17/1996	TDS	3500	mg/L	1
Lower Chinle Non-mixing Zone	CW33	11/18/1997	TDS	3670	mg/L	1
Lower Chinle Non-mixing Zone	CW33	11/24/1998	TDS	3920	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/2/1999	TDS	3980	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/21/2000	TDS	3990	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/7/2001	TDS	4100	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/26/2002	TDS	3770	mg/L	1
Lower Chinle Non-mixing Zone	CW41	10/18/1996	TDS	811	mg/L	1
Lower Chinle Non-mixing Zone	CW41	1/16/1997	TDS	816	mg/L	1
Lower Chinle Non-mixing Zone	CW41	4/17/1997	TDS	851	mg/L	1
Lower Chinle Non-mixing Zone	CW41	9/29/1997	TDS	810	mg/L	1
Lower Chinle Non-mixing Zone	CW41	4/13/1998	TDS	805	mg/L	1
Lower Chinle Non-mixing Zone	CW41	9/28/1998	TDS	864	mg/L	1
Lower Chinle Non-mixing Zone	CW26	4/4/1995	Selenium	0.192	mg/L	1
Lower Chinle Non-mixing Zone	CW26	4/4/1995	Sulfate	635	mg/L	1
Lower Chinle Non-mixing Zone	CW26	4/4/1995	Chlorine	101	mg/L	1
Lower Chinle Non-mixing Zone	CW26	4/4/1995	Selenium	0.236	mg/L	1
Lower Chinle Non-mixing Zone	CW26	4/4/1995	Sulfate	635	mg/L	1
Lower Chinle Non-mixing Zone	CW26	4/4/1995	Chlorine	101	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/27/1995	Selenium	0.246	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/27/1995	Sulfate	596	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/27/1995	Chlorine	92	mg/L	1
Lower Chinle Non-mixing Zone	CW26	8/28/1996	Selenium	0.332	mg/L	1
Lower Chinle Non-mixing Zone	CW26	8/28/1996	Sulfate	697	mg/L	1
Lower Chinle Non-mixing Zone	CW26	5/30/1997	Selenium	0.337	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Lower Chinle Non-mixing Zone	CW26	5/30/1997	Sulfate	720	mg/L	1
Lower Chinle Non-mixing Zone	CW26	5/30/1997	Chlorine	120	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/19/1997	Selenium	0.213	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/19/1997	Sulfate	679	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/19/1997	Chlorine	110	mg/L	1
Lower Chinle Non-mixing Zone	CW26	5/20/1998	Selenium	0.272	mg/L	1
Lower Chinle Non-mixing Zone	CW26	5/20/1998	Sulfate	699	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/4/1998	Selenium	0.317	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/4/1998	Sulfate	780	mg/L	1
Lower Chinle Non-mixing Zone	CW26	11/4/1998	Chlorine	139	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/3/1999	Selenium	0.362	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/3/1999	Sulfate	743.5	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/21/2000	Selenium	0.2619	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/21/2000	Sulfate	664	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/6/2001	Selenium	0.247	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/6/2001	Sulfate	607	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/26/2002	Selenium	0.224	mg/L	1
Lower Chinle Non-mixing Zone	CW26	6/26/2002	Sulfate	587	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/5/1995	Selenium	0.011	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/5/1995	Sulfate	519	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/5/1995	Chlorine	67	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/7/1995	Selenium	0.034	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/7/1995	Sulfate	535	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/7/1995	Chlorine	62	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/9/1995	Selenium	0.079	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/9/1995	Sulfate	546	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/9/1995	Chlorine	57.3	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/13/1995	Selenium	0.023	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/13/1995	Sulfate	531	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/13/1995	Chlorine	61	mg/L	1
Lower Chinle Non-mixing Zone	CW29	10/14/1996	Selenium	0.016	mg/L	1
Lower Chinle Non-mixing Zone	CW29	10/14/1996	Sulfate	568	mg/L	1
Lower Chinle Non-mixing Zone	CW29	10/14/1996	Chlorine	56.8	mg/L	1
Lower Chinle Non-mixing Zone	CW29	5/30/1997	Selenium	0.014	mg/L	0
Lower Chinle Non-mixing Zone	CW29	5/30/1997	Sulfate	537	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/8/1997	Selenium	0.017	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/8/1997	Sulfate	537	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/8/1997	Chlorine	59	mg/L	1
Lower Chinle Non-mixing Zone	CW29	5/19/1998	Selenium	0.028	mg/L	1
Lower Chinle Non-mixing Zone	CW29	5/19/1998	Sulfate	543	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/5/1998	Selenium	0.012	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/5/1998	Sulfate	517	mg/L	1
Lower Chinle Non-mixing Zone	CW29	11/5/1998	Chlorine	60	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/3/1999	Selenium	0.02	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/3/1999	Sulfate	526	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/21/2000	Selenium	0.02716	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/21/2000	Sulfate	557	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/6/2001	Selenium	0.03	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/6/2001	Sulfate	503	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/24/2002	Selenium	0.031	mg/L	1
Lower Chinle Non-mixing Zone	CW29	6/24/2002	Sulfate	479	mg/L	1
Lower Chinle Non-mixing Zone	CW31	9/15/1995	Selenium	0.01	mg/L	0
Lower Chinle Non-mixing Zone	CW31	9/15/1995	Sulfate	1999	mg/L	1
Lower Chinle Non-mixing Zone	CW31	9/15/1995	Chlorine	137	mg/L	1
Lower Chinle Non-mixing Zone	CW31	10/17/1996	Selenium	0.005	mg/L	0
Lower Chinle Non-mixing Zone	CW31	10/17/1996	Sulfate	1290	mg/L	1
Lower Chinle Non-mixing Zone	CW31	10/17/1996	Chlorine	82	mg/L	1
Lower Chinle Non-mixing Zone	CW31	11/14/1997	Selenium	0.005	mg/L	0

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Lower Chinle Non-mixing Zone	CW31	11/14/1997	Sulfate	759	mg/L	1
Lower Chinle Non-mixing Zone	CW31	11/19/1998	Selenium	0.005	mg/L	0
Lower Chinle Non-mixing Zone	CW31	11/19/1998	Sulfate	865	mg/L	1
Lower Chinle Non-mixing Zone	CW31	6/2/1999	Selenium	0.005	mg/L	0
Lower Chinle Non-mixing Zone	CW31	6/2/1999	Sulfate	878	mg/L	1
Lower Chinle Non-mixing Zone	CW31	6/21/2000	Selenium	0.005	mg/L	0
Lower Chinle Non-mixing Zone	CW31	6/21/2000	Sulfate	1070	mg/L	1
Lower Chinle Non-mixing Zone	CW31	6/7/2001	Selenium	0.005	mg/L	0
Lower Chinle Non-mixing Zone	CW31	6/7/2001	Sulfate	1090	mg/L	1
Lower Chinle Non-mixing Zone	CW31	6/26/2002	Selenium	0.005	mg/L	0
Lower Chinle Non-mixing Zone	CW31	6/26/2002	Sulfate	908	mg/L	1
Lower Chinle Non-mixing Zone	CW32	9/13/1995	Sulfate	729	mg/L	1
Lower Chinle Non-mixing Zone	CW32	9/13/1995	Chlorine	204	mg/L	1
Lower Chinle Non-mixing Zone	CW32	12/11/1995	Selenium	0.01	mg/L	0
Lower Chinle Non-mixing Zone	CW32	12/11/1995	Sulfate	1164	mg/L	1
Lower Chinle Non-mixing Zone	CW32	12/11/1995	Chlorine	380	mg/L	1
Lower Chinle Non-mixing Zone	CW32	12/15/1995	Selenium	0.01	mg/L	0
Lower Chinle Non-mixing Zone	CW32	12/15/1995	Sulfate	412	mg/L	1
Lower Chinle Non-mixing Zone	CW32	12/15/1995	Chlorine	120	mg/L	1
Lower Chinle Non-mixing Zone	CW32	10/17/1996	Selenium	0.005	mg/L	0
Lower Chinle Non-mixing Zone	CW32	10/17/1996	Sulfate	1680	mg/L	1
Lower Chinle Non-mixing Zone	CW32	10/17/1996	Chlorine	634	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/3/1997	Selenium	0.005	mg/L	0
Lower Chinle Non-mixing Zone	CW32	6/3/1997	Sulfate	1790	mg/L	1
Lower Chinle Non-mixing Zone	CW32	11/18/1997	Selenium	0.009	mg/L	1
Lower Chinle Non-mixing Zone	CW32	11/18/1997	Sulfate	1814	mg/L	1
Lower Chinle Non-mixing Zone	CW32	11/18/1997	Chlorine	657	mg/L	1
Lower Chinle Non-mixing Zone	CW32	5/20/1998	Selenium	0.009	mg/L	1
Lower Chinle Non-mixing Zone	CW32	5/20/1998	Sulfate	1800	mg/L	1
Lower Chinle Non-mixing Zone	CW32	11/19/1998	Selenium	0.021	mg/L	1
Lower Chinle Non-mixing Zone	CW32	11/19/1998	Sulfate	1550	mg/L	1
Lower Chinle Non-mixing Zone	CW32	11/19/1998	Chlorine	633	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/2/1999	Selenium	0.018	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/2/1999	Sulfate	1800	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/21/2000	Selenium	0.02068	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/21/2000	Sulfate	1690	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/7/2001	Selenium	0.018	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/7/2001	Sulfate	1570	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/26/2002	Selenium	0.018	mg/L	1
Lower Chinle Non-mixing Zone	CW32	6/26/2002	Sulfate	1570	mg/L	1
Lower Chinle Non-mixing Zone	CW33	9/8/1995	Selenium	0.01	mg/L	0
Lower Chinle Non-mixing Zone	CW33	9/8/1995	Sulfate	1492	mg/L	1
Lower Chinle Non-mixing Zone	CW33	9/8/1995	Chlorine	539	mg/L	1
Lower Chinle Non-mixing Zone	CW33	9/12/1995	Selenium	0.01	mg/L	0
Lower Chinle Non-mixing Zone	CW33	9/12/1995	Sulfate	1649	mg/L	1
Lower Chinle Non-mixing Zone	CW33	9/12/1995	Chlorine	606	mg/L	1
Lower Chinle Non-mixing Zone	CW33	10/17/1996	Selenium	0.005	mg/L	0
Lower Chinle Non-mixing Zone	CW33	10/17/1996	Sulfate	1470	mg/L	1
Lower Chinle Non-mixing Zone	CW33	10/17/1996	Chlorine	435	mg/L	1
Lower Chinle Non-mixing Zone	CW33	11/18/1997	Selenium	0.01	mg/L	1
Lower Chinle Non-mixing Zone	CW33	11/18/1997	Sulfate	1760	mg/L	1
Lower Chinle Non-mixing Zone	CW33	11/24/1998	Selenium	0.013	mg/L	1
Lower Chinle Non-mixing Zone	CW33	11/24/1998	Sulfate	1910	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/2/1999	Selenium	0.014	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/2/1999	Sulfate	2070	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/21/2000	Selenium	0.01676	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/21/2000	Sulfate	2140	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/7/2001	Selenium	0.012	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Lower Chinle Non-mixing Zone	CW33	6/7/2001	Sulfate	2080	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/26/2002	Selenium	0.01	mg/L	1
Lower Chinle Non-mixing Zone	CW33	6/26/2002	Sulfate	1730	mg/L	1
Lower Chinle Non-mixing Zone	CW41	10/18/1996	Selenium	0.016	mg/L	1
Lower Chinle Non-mixing Zone	CW41	10/18/1996	Sulfate	314	mg/L	1
Lower Chinle Non-mixing Zone	CW41	10/18/1996	Chlorine	49	mg/L	1
Lower Chinle Non-mixing Zone	CW41	1/16/1997	Selenium	0.024	mg/L	1
Lower Chinle Non-mixing Zone	CW41	1/16/1997	Sulfate	297	mg/L	1
Lower Chinle Non-mixing Zone	CW41	1/16/1997	Chlorine	46	mg/L	1
Lower Chinle Non-mixing Zone	CW41	4/17/1997	Selenium	0.008	mg/L	1
Lower Chinle Non-mixing Zone	CW41	4/17/1997	Sulfate	284	mg/L	1
Lower Chinle Non-mixing Zone	CW41	4/17/1997	Chlorine	51.4	mg/L	1
Lower Chinle Non-mixing Zone	CW41	9/29/1997	Selenium	0.014	mg/L	1
Lower Chinle Non-mixing Zone	CW41	9/29/1997	Sulfate	287	mg/L	1
Lower Chinle Non-mixing Zone	CW41	4/13/1998	Selenium	0.012	mg/L	1
Lower Chinle Non-mixing Zone	CW41	4/13/1998	Sulfate	300	mg/L	1
Lower Chinle Non-mixing Zone	CW41	4/13/1998	Chlorine	53	mg/L	1
Lower Chinle Non-mixing Zone	CW41	9/28/1998	Selenium	0.009	mg/L	1
Lower Chinle Non-mixing Zone	CW41	9/28/1998	Sulfate	303	mg/L	1
Middle Chinle Non-mixing Zone	ACW	8/18/1981	TDS	1470	mg/L	1
Middle Chinle Non-mixing Zone	ACW	10/8/1981	TDS	1490	mg/L	1
Middle Chinle Non-mixing Zone	ACW	11/19/1981	TDS	1500	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/1/1982	TDS	1490	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/15/1982	TDS	1520	mg/L	1
Middle Chinle Non-mixing Zone	ACW	3/2/1982	TDS	1470	mg/L	1
Middle Chinle Non-mixing Zone	ACW	5/21/1982	TDS	1420	mg/L	1
Middle Chinle Non-mixing Zone	ACW	11/16/1982	TDS	1430	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/14/1983	TDS	1490	mg/L	1
Middle Chinle Non-mixing Zone	ACW	4/15/1983	TDS	1460	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1983	TDS	1353	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1983	TDS	1410	mg/L	1
Middle Chinle Non-mixing Zone	ACW	8/31/1983	TDS	1370	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/19/1983	TDS	1370	mg/L	1
Middle Chinle Non-mixing Zone	ACW	1/1/1984	TDS	1470	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/19/1984	TDS	1220	mg/L	1
Middle Chinle Non-mixing Zone	ACW	11/2/1984	TDS	1440	mg/L	1
Middle Chinle Non-mixing Zone	ACW	3/19/1986	TDS	560	mg/L	1
Middle Chinle Non-mixing Zone	ACW	5/20/1986	TDS	740	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/9/1986	TDS	820	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/31/1986	TDS	720	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/19/1989	TDS	1240	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/26/1990	TDS	1400	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1991	TDS	1570	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/10/1992	TDS	1470	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/12/1994	TDS	1173	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/12/1994	TDS	1172	mg/L	1
Middle Chinle Non-mixing Zone	CW1	1/21/1982	TDS	1780	mg/L	1
Middle Chinle Non-mixing Zone	CW1	1/28/1982	TDS	1600	mg/L	1
Middle Chinle Non-mixing Zone	CW1	3/9/1994	TDS	1326	mg/L	1
Middle Chinle Non-mixing Zone	CW1	2/26/2002	TDS	1240	mg/L	1
Middle Chinle Non-mixing Zone	CW1	8/21/2002	TDS	1320	mg/L	1
Middle Chinle Non-mixing Zone	CW1	4/23/2003	TDS	1320	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/1/1995	TDS	1636	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/1/1995	TDS	1486	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/17/1995	TDS	1316	mg/L	1
Middle Chinle Non-mixing Zone	CW14	3/2/1995	TDS	1306	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/22/1982	TDS	1970	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/1982	TDS	1670	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	CW2	7/15/1982	TDS	1210	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/20/1983	TDS	1150	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/14/1983	TDS	1180	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/27/1983	TDS	992	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/27/1983	TDS	1100	mg/L	1
Middle Chinle Non-mixing Zone	CW2	9/12/1983	TDS	1090	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/26/1983	TDS	1160	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/5/1984	TDS	1330	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/4/1984	TDS	1270	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/15/1984	TDS	1310	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/12/1984	TDS	1370	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/16/1985	TDS	1040	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/10/1985	TDS	1170	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/22/1985	TDS	1200	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/3/1985	TDS	1100	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/9/1986	TDS	1090	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/8/1986	TDS	1050	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/15/1986	TDS	1190	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/13/1986	TDS	1110	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/8/1987	TDS	1010	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/9/1987	TDS	860	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/17/1987	TDS	1100	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/15/1987	TDS	890	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/19/1987	TDS	1166	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/19/1987	TDS	910	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/26/1988	TDS	800	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/20/1988	TDS	750	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/20/1988	TDS	720	mg/L	1
Middle Chinle Non-mixing Zone	CW2	12/15/1988	TDS	1140	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/23/1989	TDS	930	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/24/1989	TDS	1230	mg/L	1
Middle Chinle Non-mixing Zone	CW2	9/20/1989	TDS	1110	mg/L	1
Middle Chinle Non-mixing Zone	CW2	12/1/1989	TDS	1020	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/15/1990	TDS	1080	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/8/1990	TDS	990	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/7/1990	TDS	1140	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/27/1990	TDS	900	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/27/1990	TDS	988	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/19/1991	TDS	1220	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/16/1991	TDS	1080	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/14/1991	TDS	996	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/14/1991	TDS	1120	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/26/1991	TDS	1130	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/19/1992	TDS	1100	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/20/1992	TDS	1160	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/30/1992	TDS	1150	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/30/1992	TDS	1072	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/4/1992	TDS	1180	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/8/1993	TDS	1140	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/4/1993	TDS	1100	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/12/1993	TDS	1110	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/1/1993	TDS	1087	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/1994	TDS	1071	mg/L	1
Middle Chinle Non-mixing Zone	CW2	3/10/1994	TDS	1186	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/3/1994	TDS	1132	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/1994	TDS	1124	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/2/1994	TDS	1104	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/1995	TDS	1138	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	CW2	2/3/1995	TDS	1118	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/5/1995	TDS	1168	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/1995	TDS	1239	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/15/1995	TDS	1295	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/12/1996	TDS	1425	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/12/1996	TDS	1451	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/14/1996	TDS	1385	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/29/1996	TDS	1277	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/3/1997	TDS	1280	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/29/1997	TDS	1360	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/28/1997	TDS	1300	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/13/1997	TDS	1400	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/10/1998	TDS	1220	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/6/1998	TDS	1220	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/5/1998	TDS	1450	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/28/1998	TDS	1330	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/4/1999	TDS	1750	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/20/1999	TDS	1290	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/17/1999	TDS	1240	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/4/1999	TDS	1510	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/2000	TDS	1160	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/2/2000	TDS	1240	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/2000	TDS	1440	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/28/2000	TDS	1180	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/30/2001	TDS	935	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/26/2002	TDS	1040	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/15/2002	TDS	947	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/21/2002	TDS	1050	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/23/2003	TDS	1000	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/5/1995	TDS	1066	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/13/1995	TDS	1004	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/21/1995	TDS	1078	mg/L	1
Middle Chinle Non-mixing Zone	CW28	8/27/1996	TDS	944	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/19/1997	TDS	1250	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/4/1998	TDS	1350	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/26/1999	TDS	1355	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/20/2000	TDS	1410	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/24/2001	TDS	1370	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/23/2002	TDS	1360	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/28/2003	TDS	1060	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/16/1980	TDS	1118	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/18/1981	TDS	1480	mg/L	1
Middle Chinle Non-mixing Zone	WCW	9/21/1981	TDS	1510	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/8/1981	TDS	1450	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/19/1981	TDS	1480	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/31/1981	TDS	1820	mg/L	1
Middle Chinle Non-mixing Zone	WCW	2/15/1982	TDS	1470	mg/L	1
Middle Chinle Non-mixing Zone	WCW	3/2/1982	TDS	1420	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/23/1982	TDS	1410	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/18/1982	TDS	1380	mg/L	1
Middle Chinle Non-mixing Zone	WCW	2/14/1983	TDS	1450	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/15/1983	TDS	1560	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/27/1983	TDS	1398	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/27/1983	TDS	1500	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/31/1983	TDS	1350	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/19/1983	TDS	1420	mg/L	1
Middle Chinle Non-mixing Zone	WCW	1/20/1984	TDS	1420	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/26/1984	TDS	1290	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	WCW	7/18/1984	TDS	1240	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/1/1984	TDS	1530	mg/L	1
Middle Chinle Non-mixing Zone	WCW	1/25/1985	TDS	1170	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/22/1985	TDS	1520	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/18/1985	TDS	1510	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/18/1985	TDS	1490	mg/L	1
Middle Chinle Non-mixing Zone	WCW	1/30/1986	TDS	1190	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/29/1986	TDS	1070	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/30/1986	TDS	1510	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/3/1986	TDS	1210	mg/L	1
Middle Chinle Non-mixing Zone	WCW	3/19/1987	TDS	1410	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/1/1987	TDS	1530	mg/L	1
Middle Chinle Non-mixing Zone	WCW	9/30/1987	TDS	1500	mg/L	1
Middle Chinle Non-mixing Zone	WCW	2/29/1988	TDS	1440	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/27/1988	TDS	1520	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/30/1988	TDS	1320	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/12/1988	TDS	1170	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/7/1989	TDS	1380	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/5/1989	TDS	1550	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/20/1989	TDS	1540	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/25/1990	TDS	1440	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/10/1991	TDS	1510	mg/L	1
Middle Chinle Non-mixing Zone	WCW	9/17/1992	TDS	1550	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/8/1993	TDS	1550	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/15/1994	TDS	1508	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/15/1994	TDS	1451	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/25/1994	TDS	1473	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/22/1996	TDS	1470	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/22/1997	TDS	1460	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/6/1998	TDS	1470	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/11/1999	TDS	1425	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/16/2000	TDS	1560	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/7/1979	Selenium	0.014	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/7/1979	Sulfate	759	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/2/1980	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	ACW	12/2/1980	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	12/2/1980	Sulfate	799	mg/L	1
Middle Chinle Non-mixing Zone	ACW	8/18/1981	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	ACW	8/18/1981	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	8/18/1981	Sulfate	929	mg/L	1
Middle Chinle Non-mixing Zone	ACW	10/8/1981	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	ACW	10/8/1981	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	10/8/1981	Sulfate	704	mg/L	1
Middle Chinle Non-mixing Zone	ACW	11/19/1981	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	ACW	11/19/1981	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	11/19/1981	Sulfate	787	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/1/1982	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/1/1982	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/1/1982	Sulfate	866	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/15/1982	Uranium	0.06784	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/15/1982	Selenium	0.03	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/15/1982	Sulfate	844	mg/L	1
Middle Chinle Non-mixing Zone	ACW	3/2/1982	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	ACW	3/2/1982	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	3/2/1982	Sulfate	797	mg/L	1
Middle Chinle Non-mixing Zone	ACW	5/21/1982	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	ACW	5/21/1982	Selenium	0.03	mg/L	1
Middle Chinle Non-mixing Zone	ACW	5/21/1982	Sulfate	752	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	ACW	11/16/1982	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	ACW	11/16/1982	Selenium	0.05	mg/L	1
Middle Chinle Non-mixing Zone	ACW	11/16/1982	Sulfate	691	mg/L	1
Middle Chinle Non-mixing Zone	ACW	2/14/1983	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	ACW	2/14/1983	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	2/14/1983	Sulfate	746	mg/L	1
Middle Chinle Non-mixing Zone	ACW	4/15/1983	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	ACW	4/15/1983	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	ACW	4/15/1983	Sulfate	750	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1983	Selenium	0.006	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1983	Uranium	0.038	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1983	Uranium	0.06784	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1983	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1983	Sulfate	657	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1983	Sulfate	730	mg/L	1
Middle Chinle Non-mixing Zone	ACW	8/31/1983	Uranium	0.010176	mg/L	1
Middle Chinle Non-mixing Zone	ACW	8/31/1983	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	ACW	8/31/1983	Sulfate	746	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/19/1983	Uranium	0.006784	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/19/1983	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/19/1983	Sulfate	746	mg/L	1
Middle Chinle Non-mixing Zone	ACW	1/1/1984	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	ACW	1/1/1984	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	ACW	1/1/1984	Sulfate	759	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/19/1984	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	7/19/1984	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/19/1984	Sulfate	814	mg/L	1
Middle Chinle Non-mixing Zone	ACW	11/2/1984	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	ACW	11/2/1984	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	ACW	11/2/1984	Sulfate	688	mg/L	1
Middle Chinle Non-mixing Zone	ACW	3/19/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	3/19/1986	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	ACW	3/19/1986	Sulfate	374	mg/L	1
Middle Chinle Non-mixing Zone	ACW	5/20/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	5/20/1986	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	ACW	5/20/1986	Sulfate	330	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/9/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	7/9/1986	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/9/1986	Sulfate	334	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/31/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	12/31/1986	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/31/1986	Sulfate	335	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/19/1989	Uranium	0.0424	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/19/1989	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	12/19/1989	Sulfate	667	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/26/1990	Uranium	0.02544	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/26/1990	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/26/1990	Sulfate	667	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1991	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	ACW	6/27/1991	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	6/27/1991	Sulfate	640	mg/L	1
Middle Chinle Non-mixing Zone	ACW	12/10/1992	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	ACW	12/10/1992	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	ACW	12/10/1992	Sulfate	692	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/12/1994	Uranium	0.022	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/12/1994	Selenium	0.011	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/12/1994	Sulfate	643	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/12/1994	Uranium	0.019	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	ACW	7/12/1994	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	ACW	7/12/1994	Sulfate	640	mg/L	1
Middle Chinle Non-mixing Zone	CW1	1/21/1982	Uranium	0.11024	mg/L	1
Middle Chinle Non-mixing Zone	CW1	1/21/1982	Selenium	0.09	mg/L	1
Middle Chinle Non-mixing Zone	CW1	1/21/1982	Sulfate	1039	mg/L	1
Middle Chinle Non-mixing Zone	CW1	1/28/1982	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW1	1/28/1982	Selenium	0.09	mg/L	1
Middle Chinle Non-mixing Zone	CW1	1/28/1982	Sulfate	903	mg/L	1
Middle Chinle Non-mixing Zone	CW1	3/9/1994	Uranium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW1	3/9/1994	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW1	3/9/1994	Sulfate	724	mg/L	1
Middle Chinle Non-mixing Zone	CW1	2/26/2002	Uranium	0.034	mg/L	1
Middle Chinle Non-mixing Zone	CW1	2/26/2002	Selenium	0.011	mg/L	1
Middle Chinle Non-mixing Zone	CW1	2/26/2002	Sulfate	552	mg/L	1
Middle Chinle Non-mixing Zone	CW1	8/21/2002	Uranium	0.04	mg/L	1
Middle Chinle Non-mixing Zone	CW1	8/21/2002	Selenium	0.019	mg/L	1
Middle Chinle Non-mixing Zone	CW1	8/21/2002	Sulfate	616	mg/L	1
Middle Chinle Non-mixing Zone	CW1	4/23/2003	Uranium	0.0619	mg/L	1
Middle Chinle Non-mixing Zone	CW1	4/23/2003	Selenium	0.022	mg/L	1
Middle Chinle Non-mixing Zone	CW1	4/23/2003	Sulfate	597	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/1/1995	Uranium	0.019	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/1/1995	Selenium	0.222	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/1/1995	Sulfate	754	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/1/1995	Uranium	0.019	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/1/1995	Selenium	0.083	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/1/1995	Sulfate	667	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/17/1995	Uranium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/17/1995	Selenium	0.099	mg/L	1
Middle Chinle Non-mixing Zone	CW14	2/17/1995	Sulfate	656	mg/L	1
Middle Chinle Non-mixing Zone	CW14	3/2/1995	Uranium	0.012	mg/L	1
Middle Chinle Non-mixing Zone	CW14	3/2/1995	Selenium	0.1	mg/L	1
Middle Chinle Non-mixing Zone	CW14	3/2/1995	Sulfate	601	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/22/1982	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW2	1/22/1982	Selenium	0.09	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/22/1982	Sulfate	1141	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/1982	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/2/1982	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/2/1982	Sulfate	847	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/15/1982	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW2	7/15/1982	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/15/1982	Sulfate	607	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/20/1983	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW2	1/20/1983	Selenium	0.03	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/20/1983	Sulfate	492	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/14/1983	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW2	4/14/1983	Selenium	0.04	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/14/1983	Sulfate	549	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/27/1983	Uranium	0.015	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/27/1983	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	6/27/1983	Sulfate	464	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/27/1983	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW2	6/27/1983	Selenium	0.03	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/27/1983	Sulfate	441	mg/L	1
Middle Chinle Non-mixing Zone	CW2	9/12/1983	Uranium	0.003392	mg/L	1
Middle Chinle Non-mixing Zone	CW2	9/12/1983	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	9/12/1983	Sulfate	560	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/26/1983	Uranium	0.003392	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/26/1983	Selenium	0.01	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	CW2	10/26/1983	Sulfate	593	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/5/1984	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/5/1984	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/5/1984	Sulfate	648	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/4/1984	Uranium	0.003392	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/4/1984	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/4/1984	Sulfate	769	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/15/1984	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/15/1984	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	6/15/1984	Sulfate	701	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/12/1984	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	10/12/1984	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/12/1984	Sulfate	713	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/16/1985	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/16/1985	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/16/1985	Sulfate	513	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/10/1985	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/10/1985	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/10/1985	Sulfate	549	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/22/1985	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	7/22/1985	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/22/1985	Sulfate	542	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/3/1985	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/3/1985	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/3/1985	Sulfate	530	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/9/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	1/9/1986	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/9/1986	Sulfate	523	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/8/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	4/8/1986	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/8/1986	Sulfate	807	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/15/1986	Uranium	0.013568	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/15/1986	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	7/15/1986	Sulfate	502	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/13/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	10/13/1986	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/13/1986	Sulfate	487	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/8/1987	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	1/8/1987	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/8/1987	Sulfate	496	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/9/1987	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/9/1987	Selenium	0.03	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/9/1987	Sulfate	448	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/17/1987	Uranium	0.05088	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/17/1987	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/17/1987	Sulfate	472	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/15/1987	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	10/15/1987	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/15/1987	Sulfate	536	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/19/1987	Uranium	0.015	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/19/1987	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	11/19/1987	Sulfate	485	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/19/1987	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	11/19/1987	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/19/1987	Sulfate	583	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/26/1988	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	1/26/1988	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/26/1988	Sulfate	508	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	CW2	4/20/1988	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	4/20/1988	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/20/1988	Sulfate	519	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/20/1988	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/20/1988	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/20/1988	Sulfate	548	mg/L	1
Middle Chinle Non-mixing Zone	CW2	12/15/1988	Uranium	0.13568	mg/L	1
Middle Chinle Non-mixing Zone	CW2	12/15/1988	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	12/15/1988	Sulfate	579	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/23/1989	Uranium	0.06784	mg/L	1
Middle Chinle Non-mixing Zone	CW2	1/23/1989	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	1/23/1989	Sulfate	486	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/24/1989	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	4/24/1989	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	4/24/1989	Sulfate	603	mg/L	1
Middle Chinle Non-mixing Zone	CW2	9/20/1989	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	9/20/1989	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	9/20/1989	Sulfate	524	mg/L	1
Middle Chinle Non-mixing Zone	CW2	12/1/1989	Uranium	0.02544	mg/L	1
Middle Chinle Non-mixing Zone	CW2	12/1/1989	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	12/1/1989	Sulfate	576	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/15/1990	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/15/1990	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/15/1990	Sulfate	550	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/8/1990	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/8/1990	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/8/1990	Sulfate	509	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/7/1990	Uranium	0.06784	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/7/1990	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/7/1990	Sulfate	579	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/27/1990	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW2	11/27/1990	Selenium	0.002	mg/L	0
Middle Chinle Non-mixing Zone	CW2	11/27/1990	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/27/1990	Sulfate	413	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/27/1990	Sulfate	449	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/19/1991	Uranium	0.03392	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/19/1991	Selenium	0.03	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/19/1991	Sulfate	574	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/16/1991	Uranium	0.07632	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/16/1991	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	5/16/1991	Sulfate	485	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/14/1991	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/14/1991	Uranium	0.017	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/14/1991	Selenium	0.003	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/14/1991	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	8/14/1991	Sulfate	449	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/14/1991	Sulfate	523	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/26/1991	Uranium	0.0424	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/26/1991	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	11/26/1991	Sulfate	595	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/19/1992	Uranium	0.03392	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/19/1992	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/19/1992	Sulfate	539	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/20/1992	Uranium	0.0424	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/20/1992	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	5/20/1992	Sulfate	588	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/30/1992	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/30/1992	Selenium	0.01	mg/L	0

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	CW2	7/30/1992	Sulfate	503	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/30/1992	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/30/1992	Selenium	0.001	mg/L	0
Middle Chinle Non-mixing Zone	CW2	7/30/1992	Sulfate	490	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/4/1992	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/4/1992	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	11/4/1992	Sulfate	542	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/8/1993	Uranium	0.02544	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/8/1993	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/8/1993	Sulfate	520	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/4/1993	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW2	5/4/1993	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	5/4/1993	Sulfate	869	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/12/1993	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	CW2	8/12/1993	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	8/12/1993	Sulfate	512	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/1/1993	Uranium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/1/1993	Selenium	0.001	mg/L	0
Middle Chinle Non-mixing Zone	CW2	11/1/1993	Sulfate	450	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/1994	Uranium	0.014	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/1994	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/2/1994	Sulfate	496	mg/L	1
Middle Chinle Non-mixing Zone	CW2	3/10/1994	Uranium	0.018	mg/L	1
Middle Chinle Non-mixing Zone	CW2	3/10/1994	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	3/10/1994	Sulfate	595	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/3/1994	Uranium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/3/1994	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	5/3/1994	Sulfate	542	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/1994	Uranium	0.017	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/1994	Selenium	0.007	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/1994	Sulfate	544	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/2/1994	Uranium	0.023	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/2/1994	Selenium	0.005	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/2/1994	Sulfate	589	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/1995	Uranium	0.015	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/1995	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/2/1995	Sulfate	520	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/3/1995	Uranium	0.019	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/3/1995	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/3/1995	Sulfate	501	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/5/1995	Uranium	0.025	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/5/1995	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	5/5/1995	Sulfate	697	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/1995	Uranium	0.015	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/1995	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	8/2/1995	Sulfate	581	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/15/1995	Uranium	0.018	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/15/1995	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	11/15/1995	Sulfate	646	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/12/1996	Uranium	0.018	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/12/1996	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/12/1996	Sulfate	734	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/12/1996	Uranium	0.016	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/12/1996	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	2/12/1996	Sulfate	741	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/14/1996	Uranium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/14/1996	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	CW2	5/14/1996	Sulfate	704	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	CW2	7/29/1996	Uranium	0.0121	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/29/1996	Selenium	0.011	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/29/1996	Sulfate	651	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/4/1996	Uranium	0.012	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/4/1996	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	11/4/1996	Sulfate	1430	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/3/1997	Uranium	0.014	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/3/1997	Selenium	0.005	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/3/1997	Sulfate	670	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/29/1997	Uranium	0.013	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/29/1997	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	4/29/1997	Sulfate	666	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/28/1997	Uranium	0.015	mg/L	1
Middle Chinle Non-mixing Zone	CW2	7/28/1997	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	7/28/1997	Sulfate	711	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/13/1997	Uranium	0.018	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/13/1997	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	CW2	10/13/1997	Sulfate	722	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/10/1998	Uranium	0.0146	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/10/1998	Selenium	0.005	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/10/1998	Sulfate	546	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/6/1998	Uranium	0.0195	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/6/1998	Selenium	0.005	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/6/1998	Sulfate	579	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/5/1998	Uranium	0.0133	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/5/1998	Selenium	0.009	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/5/1998	Sulfate	782	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/28/1998	Uranium	0.015	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/28/1998	Selenium	0.006	mg/L	1
Middle Chinle Non-mixing Zone	CW2	10/28/1998	Sulfate	704	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/4/1999	Uranium	0.0129	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/4/1999	Selenium	0.005	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/4/1999	Sulfate	850	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/20/1999	Uranium	0.013	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/20/1999	Selenium	0.008	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/20/1999	Sulfate	665	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/17/1999	Uranium	0.0145	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/17/1999	Selenium	0.008	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/17/1999	Sulfate	561	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/4/1999	Uranium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/4/1999	Selenium	0.007	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/4/1999	Sulfate	810	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/2000	Uranium	0.013	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/2000	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/2/2000	Sulfate	582	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/2/2000	Uranium	0.0154	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/2/2000	Selenium	0.014	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/2/2000	Sulfate	637	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/2000	Uranium	0.01833	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/2000	Selenium	0.007509	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/2/2000	Sulfate	704	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/28/2000	Uranium	0.01151	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/28/2000	Selenium	0.01512	mg/L	1
Middle Chinle Non-mixing Zone	CW2	11/28/2000	Sulfate	553	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/30/2001	Uranium	0.016	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/30/2001	Selenium	0.013	mg/L	1
Middle Chinle Non-mixing Zone	CW2	5/30/2001	Sulfate	400	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/26/2002	Uranium	0.069	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	CW2	2/26/2002	Selenium	0.013	mg/L	1
Middle Chinle Non-mixing Zone	CW2	2/26/2002	Sulfate	411	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/15/2002	Uranium	0.04	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/15/2002	Selenium	0.021	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/15/2002	Sulfate	410	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/21/2002	Uranium	0.1	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/21/2002	Selenium	0.019	mg/L	1
Middle Chinle Non-mixing Zone	CW2	8/21/2002	Sulfate	441	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/23/2003	Uranium	0.0339	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/23/2003	Selenium	0.018	mg/L	1
Middle Chinle Non-mixing Zone	CW2	4/23/2003	Sulfate	410	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/5/1995	Uranium	0.014	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/5/1995	Selenium	0.031	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/5/1995	Sulfate	373	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/13/1995	Uranium	0.011	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/13/1995	Selenium	0.048	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/13/1995	Sulfate	361	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/21/1995	Uranium	0.011	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/21/1995	Selenium	0.083	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/21/1995	Sulfate	429	mg/L	1
Middle Chinle Non-mixing Zone	CW28	8/27/1996	Uranium	0.036	mg/L	1
Middle Chinle Non-mixing Zone	CW28	8/27/1996	Selenium	0.053	mg/L	1
Middle Chinle Non-mixing Zone	CW28	8/27/1996	Sulfate	319	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/19/1997	Uranium	0.072	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/19/1997	Selenium	0.054	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/19/1997	Sulfate	442	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/4/1998	Uranium	0.076	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/4/1998	Selenium	0.027	mg/L	1
Middle Chinle Non-mixing Zone	CW28	11/4/1998	Sulfate	482	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/26/1999	Uranium	0.06285	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/26/1999	Selenium	0.032	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/26/1999	Sulfate	465.5	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/20/2000	Uranium	0.08309	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/20/2000	Selenium	0.03079	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/20/2000	Sulfate	446	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/24/2001	Uranium	0.048	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/24/2001	Selenium	0.016	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/24/2001	Sulfate	390	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/23/2002	Uranium	0.036	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/23/2002	Selenium	0.083	mg/L	1
Middle Chinle Non-mixing Zone	CW28	7/23/2002	Sulfate	461	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/28/2003	Uranium	0.0172	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/28/2003	Selenium	0.092	mg/L	1
Middle Chinle Non-mixing Zone	CW28	4/28/2003	Sulfate	407	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/16/1980	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	6/16/1980	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	6/16/1980	Sulfate	752	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/7/1980	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	11/17/1980	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	11/17/1980	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/17/1980	Sulfate	775	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/2/1980	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	12/2/1980	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	12/2/1980	Sulfate	818	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/18/1981	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	8/18/1981	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/18/1981	Sulfate	787	mg/L	1
Middle Chinle Non-mixing Zone	WCW	9/21/1981	Uranium	0.00848	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	WCW	9/21/1981	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	9/21/1981	Sulfate	787	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/8/1981	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	10/8/1981	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	10/8/1981	Sulfate	733	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/19/1981	Uranium	0.02544	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/19/1981	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	11/19/1981	Sulfate	755	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/31/1981	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	12/31/1981	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	12/31/1981	Sulfate	766	mg/L	1
Middle Chinle Non-mixing Zone	WCW	2/15/1982	Uranium	0.05088	mg/L	1
Middle Chinle Non-mixing Zone	WCW	2/15/1982	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	2/15/1982	Sulfate	772	mg/L	1
Middle Chinle Non-mixing Zone	WCW	3/2/1982	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	3/2/1982	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	3/2/1982	Sulfate	753	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/23/1982	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	5/23/1982	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	5/23/1982	Sulfate	739	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/18/1982	Uranium	0.11024	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/18/1982	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/18/1982	Sulfate	730	mg/L	1
Middle Chinle Non-mixing Zone	WCW	2/14/1983	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	2/14/1983	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	2/14/1983	Sulfate	708	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/15/1983	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	4/15/1983	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/15/1983	Sulfate	744	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/27/1983	Uranium	0.033	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/27/1983	Selenium	0.007	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/27/1983	Sulfate	759	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/27/1983	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/27/1983	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/27/1983	Sulfate	694	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/31/1983	Uranium	0.013568	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/31/1983	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/31/1983	Sulfate	731	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/19/1983	Uranium	0.006784	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/19/1983	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/19/1983	Sulfate	895	mg/L	1
Middle Chinle Non-mixing Zone	WCW	1/20/1984	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	1/20/1984	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	1/20/1984	Sulfate	824	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/26/1984	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	4/26/1984	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	4/26/1984	Sulfate	741	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/18/1984	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/18/1984	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/18/1984	Sulfate	895	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/1/1984	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	11/1/1984	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	11/1/1984	Sulfate	842	mg/L	1
Middle Chinle Non-mixing Zone	WCW	1/25/1985	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	1/25/1985	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	1/25/1985	Sulfate	807	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/22/1985	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	4/22/1985	Selenium	0.01	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	WCW	4/22/1985	Sulfate	807	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/18/1985	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/18/1985	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/18/1985	Sulfate	896	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/18/1985	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	10/18/1985	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/18/1985	Sulfate	817	mg/L	1
Middle Chinle Non-mixing Zone	WCW	1/30/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	1/30/1986	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	WCW	1/30/1986	Sulfate	810	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/29/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	4/29/1986	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/29/1986	Sulfate	827	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/30/1986	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	7/30/1986	Selenium	0.02	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/30/1986	Sulfate	811	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/3/1986	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/3/1986	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	12/3/1986	Sulfate	845	mg/L	1
Middle Chinle Non-mixing Zone	WCW	3/19/1987	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	3/19/1987	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	3/19/1987	Sulfate	792	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/1/1987	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	7/1/1987	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/1/1987	Sulfate	818	mg/L	1
Middle Chinle Non-mixing Zone	WCW	9/30/1987	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	9/30/1987	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	9/30/1987	Sulfate	823	mg/L	1
Middle Chinle Non-mixing Zone	WCW	2/29/1988	Uranium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	2/29/1988	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	2/29/1988	Sulfate	775	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/27/1988	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/27/1988	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/27/1988	Sulfate	815	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/30/1988	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/30/1988	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	8/30/1988	Sulfate	797	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/12/1988	Uranium	0.02544	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/12/1988	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/12/1988	Sulfate	798	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/7/1989	Uranium	0.03392	mg/L	1
Middle Chinle Non-mixing Zone	WCW	4/7/1989	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	4/7/1989	Sulfate	844	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/5/1989	Uranium	0.03392	mg/L	1
Middle Chinle Non-mixing Zone	WCW	7/5/1989	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	7/5/1989	Sulfate	818	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/20/1989	Uranium	0.00848	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/20/1989	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/20/1989	Sulfate	790	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/25/1990	Uranium	0.01696	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/25/1990	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/25/1990	Sulfate	820	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/10/1991	Selenium	0.01	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/10/1991	Sulfate	780	mg/L	1
Middle Chinle Non-mixing Zone	WCW	9/17/1992	Uranium	0.00848	mg/L	0
Middle Chinle Non-mixing Zone	WCW	9/17/1992	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	9/17/1992	Sulfate	802	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/8/1993	Uranium	0.02544	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Middle Chinle Non-mixing Zone	WCW	6/8/1993	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	6/8/1993	Sulfate	757	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/15/1994	Uranium	0.011	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/15/1994	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	WCW	6/15/1994	Sulfate	786	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/15/1994	Uranium	0.015	mg/L	1
Middle Chinle Non-mixing Zone	WCW	6/15/1994	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	6/15/1994	Sulfate	764	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/25/1994	Uranium	0.013	mg/L	1
Middle Chinle Non-mixing Zone	WCW	10/25/1994	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	WCW	10/25/1994	Sulfate	772	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/22/1996	Uranium	0.011	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/22/1996	Selenium	0.01	mg/L	0
Middle Chinle Non-mixing Zone	WCW	5/22/1996	Sulfate	760	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/22/1997	Uranium	0.008	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/22/1997	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	WCW	5/22/1997	Sulfate	731	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/6/1998	Uranium	0.0097	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/6/1998	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	WCW	5/6/1998	Sulfate	680	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/11/1999	Uranium	0.02055	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/11/1999	Selenium	0.0085	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/11/1999	Sulfate	715.5	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/16/2000	Uranium	0.01758	mg/L	1
Middle Chinle Non-mixing Zone	WCW	5/16/2000	Selenium	0.005	mg/L	0
Middle Chinle Non-mixing Zone	WCW	5/16/2000	Sulfate	743	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/26/1982	TDS	2140	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/28/1982	TDS	2140	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/10/1983	TDS	1920	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/30/1983	TDS	2160	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/10/1984	TDS	1710	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/24/1984	TDS	2130	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/18/1985	TDS	1290	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/19/1985	TDS	1530	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/13/1986	TDS	1410	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/23/1986	TDS	2090	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/29/1987	TDS	1610	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/22/1987	TDS	1460	mg/L	1
Upper Chinle Non-mixing Zone	0931	2/10/1988	TDS	1760	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/28/1988	TDS	1770	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/18/1989	TDS	1990	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/18/1989	TDS	1870	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/3/1990	TDS	2140	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/20/1991	TDS	1960	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/12/1992	TDS	1950	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/4/1993	TDS	1990	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/1/1993	TDS	1905	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/28/1994	TDS	1893	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/17/1994	TDS	1874	mg/L	1
Upper Chinle Non-mixing Zone	0931	6/14/1995	TDS	1867	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/16/1995	TDS	1932	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/31/1996	TDS	1815	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/14/1997	TDS	1550	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/3/1997	TDS	1530	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/1/1998	TDS	1415	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/16/1998	TDS	1370	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/20/1999	TDS	1340	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/14/1999	TDS	1340	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	0931	4/6/2000	TDS	1735	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/30/2000	TDS	1410	mg/L	1
Upper Chinle Non-mixing Zone	0934	2/25/1982	TDS	1910	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/18/1989	TDS	1710	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/3/1990	TDS	1840	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/19/1991	TDS	1790	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/12/1992	TDS	1760	mg/L	1
Upper Chinle Non-mixing Zone	0934	3/4/1993	TDS	1830	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/31/1993	TDS	1777	mg/L	1
Upper Chinle Non-mixing Zone	0934	3/28/1994	TDS	1676	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/17/1994	TDS	1549	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/17/1995	TDS	1589	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/31/1996	TDS	1678	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/14/1997	TDS	1650	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/3/1997	TDS	1720	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/1/1998	TDS	1680	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/24/1998	TDS	1700	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/20/1999	TDS	1660	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/14/1999	TDS	1590	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/6/2000	TDS	1610	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/30/2000	TDS	1580	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/25/2001	TDS	1560	mg/L	1
Upper Chinle Non-mixing Zone	0934	2/26/2002	TDS	1830	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/22/2002	TDS	1780	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/28/2003	TDS	1880	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	TDS	2022	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	TDS	2050	mg/L	1
Upper Chinle Non-mixing Zone	CW13	2/11/1995	TDS	1824	mg/L	1
Upper Chinle Non-mixing Zone	CW13	5/28/1996	TDS	1921	mg/L	1
Upper Chinle Non-mixing Zone	CW13	6/14/1996	TDS	1820	mg/L	1
Upper Chinle Non-mixing Zone	CW18	2/9/1995	TDS	1608	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/22/1995	TDS	1522	mg/L	1
Upper Chinle Non-mixing Zone	CW18	8/27/1996	TDS	1820	mg/L	1
Upper Chinle Non-mixing Zone	CW18	10/15/1996	TDS	1870	mg/L	1
Upper Chinle Non-mixing Zone	CW18	1/3/1997	TDS	1850	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/17/1997	TDS	1810	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/19/1997	TDS	1970	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/14/1998	TDS	2000	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/4/1998	TDS	2010	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/22/1999	TDS	1920	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/20/2000	TDS	2010	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/24/2001	TDS	1910	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/23/2002	TDS	1930	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/28/2003	TDS	1880	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/29/1982	TDS	1600	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/9/1982	TDS	1560	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/10/1982	TDS	1560	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/15/1982	TDS	1540	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/15/1982	TDS	1540	mg/L	1
Upper Chinle Non-mixing Zone	CW3	12/23/1982	TDS	1430	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/11/1983	TDS	1520	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/14/1983	TDS	1550	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	TDS	1440	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	TDS	1475	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/12/1983	TDS	1500	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/27/1983	TDS	1410	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/6/1984	TDS	1530	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/4/1984	TDS	1450	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	CW3	7/26/1984	TDS	1410	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1984	TDS	1580	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/17/1985	TDS	1550	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/10/1985	TDS	1460	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1985	TDS	1570	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/4/1985	TDS	1200	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/9/1986	TDS	1550	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/8/1986	TDS	1250	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/16/1986	TDS	1610	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/13/1986	TDS	1310	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/8/1987	TDS	1240	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/9/1987	TDS	1360	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1987	TDS	1320	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/15/1987	TDS	1540	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1988	TDS	1350	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/20/1988	TDS	1310	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/20/1988	TDS	1410	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1988	TDS	1460	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/24/1989	TDS	1420	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/25/1989	TDS	1620	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/15/1989	TDS	920	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/29/1989	TDS	1570	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/15/1990	TDS	1340	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/8/1990	TDS	1530	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/20/1990	TDS	1500	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/7/1990	TDS	1540	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/27/1990	TDS	1450	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/27/1990	TDS	1450	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/19/1991	TDS	1480	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/15/1991	TDS	1550	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/13/1991	TDS	1480	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/13/1991	TDS	1530	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/26/1991	TDS	1550	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/20/1992	TDS	1540	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/20/1992	TDS	1500	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/29/1992	TDS	1419	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/29/1992	TDS	1550	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/4/1992	TDS	1550	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/8/1993	TDS	1550	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/4/1993	TDS	1520	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/11/1993	TDS	1467	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/11/1993	TDS	1540	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/1/1993	TDS	1509	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1994	TDS	1487	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1994	TDS	1426	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/9/1994	TDS	1476	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/3/1994	TDS	1441	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/1/1994	TDS	1410	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/1/1994	TDS	1439	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1995	TDS	1470	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/5/1995	TDS	1424	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/2/1995	TDS	1475	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/15/1995	TDS	1461	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/27/1995	TDS	1473	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/12/1996	TDS	1479	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/14/1996	TDS	1451	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/31/1996	TDS	1481	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/4/1996	TDS	1370	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	CW3	2/3/1997	TDS	1460	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/29/1997	TDS	1500	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/28/1997	TDS	1460	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/13/1997	TDS	1480	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/10/1998	TDS	1580	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/5/1998	TDS	1480	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/4/1998	TDS	1510	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/28/1998	TDS	1560	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/3/1999	TDS	1520	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/11/1999	TDS	1450	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/17/1999	TDS	1540	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/9/1999	TDS	1500	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/8/2000	TDS	1525	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/27/2000	TDS	1520	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/2/2000	TDS	1535	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/28/2000	TDS	1540	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/13/2001	TDS	1450	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/5/2001	TDS	1610	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/26/1982	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	0931	3/26/1982	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	3/26/1982	Sulfate	630	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/26/1982	Chlorine	540	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/28/1982	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	0931	7/28/1982	Selenium	0.03	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/28/1982	Sulfate	667	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/28/1982	Chlorine	156	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/10/1983	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	0931	1/10/1983	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/10/1983	Sulfate	640	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/10/1983	Chlorine	496	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/30/1983	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	0931	8/30/1983	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	8/30/1983	Sulfate	712	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/30/1983	Chlorine	397	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/10/1984	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	0931	1/10/1984	Selenium	0.03	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/10/1984	Sulfate	625	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/10/1984	Chlorine	489	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/24/1984	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	7/24/1984	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/24/1984	Sulfate	735	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/24/1984	Chlorine	418	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/18/1985	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	1/18/1985	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/18/1985	Sulfate	651	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/18/1985	Chlorine	525	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/19/1985	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	7/19/1985	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/19/1985	Sulfate	677	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/19/1985	Chlorine	475	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/13/1986	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	1/13/1986	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/13/1986	Sulfate	693	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/13/1986	Chlorine	390	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/23/1986	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	7/23/1986	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/23/1986	Sulfate	722	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/23/1986	Chlorine	390	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	0931	1/29/1987	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	1/29/1987	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/29/1987	Sulfate	699	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/29/1987	Chlorine	426	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/22/1987	Uranium	0.05936	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/22/1987	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/22/1987	Sulfate	765	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/22/1987	Chlorine	355	mg/L	1
Upper Chinle Non-mixing Zone	0931	2/10/1988	Uranium	0.14416	mg/L	1
Upper Chinle Non-mixing Zone	0931	2/10/1988	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	0931	2/10/1988	Sulfate	737	mg/L	1
Upper Chinle Non-mixing Zone	0931	2/10/1988	Chlorine	369	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/28/1988	Uranium	0.03392	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/28/1988	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/28/1988	Sulfate	686	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/28/1988	Chlorine	390	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/18/1989	Uranium	0.02544	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/18/1989	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/18/1989	Sulfate	724	mg/L	1
Upper Chinle Non-mixing Zone	0931	1/18/1989	Chlorine	277	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/18/1989	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/18/1989	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/18/1989	Sulfate	779	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/18/1989	Chlorine	262	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/3/1990	Uranium	0.00848	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/3/1990	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/3/1990	Sulfate	704	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/3/1990	Chlorine	312	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/20/1991	Uranium	0.03392	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/20/1991	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	8/20/1991	Sulfate	723	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/20/1991	Chlorine	277	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/12/1992	Uranium	0.02544	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/12/1992	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0931	8/12/1992	Sulfate	751	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/12/1992	Chlorine	277	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/4/1993	Uranium	0.05088	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/4/1993	Selenium	0.008	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/4/1993	Sulfate	737	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/4/1993	Chlorine	284	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/1/1993	Uranium	0.005088	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/1/1993	Selenium	0.001	mg/L	0
Upper Chinle Non-mixing Zone	0931	9/1/1993	Sulfate	622	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/1/1993	Chlorine	329	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/28/1994	Uranium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/28/1994	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0931	3/28/1994	Sulfate	657	mg/L	1
Upper Chinle Non-mixing Zone	0931	3/28/1994	Chlorine	333	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/17/1994	Uranium	0.006	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/17/1994	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0931	8/17/1994	Sulfate	706	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/17/1994	Chlorine	304	mg/L	1
Upper Chinle Non-mixing Zone	0931	6/14/1995	Uranium	0.0234	mg/L	1
Upper Chinle Non-mixing Zone	0931	6/14/1995	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0931	6/14/1995	Sulfate	646	mg/L	1
Upper Chinle Non-mixing Zone	0931	6/14/1995	Chlorine	313	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/16/1995	Uranium	0.016	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/16/1995	Selenium	0.005	mg/L	0

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	0931	8/16/1995	Sulfate	704	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/16/1995	Chlorine	397	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/31/1996	Uranium	0.031	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/31/1996	Selenium	0.014	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/31/1996	Sulfate	709	mg/L	1
Upper Chinle Non-mixing Zone	0931	7/31/1996	Chlorine	252	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/14/1997	Uranium	0.006	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/14/1997	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0931	4/14/1997	Sulfate	626	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/14/1997	Chlorine	235	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/3/1997	Uranium	0.004	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/3/1997	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0931	9/3/1997	Sulfate	619	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/3/1997	Chlorine	244	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/1/1998	Selenium	0.0125	mg/L	0
Upper Chinle Non-mixing Zone	0931	4/1/1998	Uranium	0.01665	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/1/1998	Sulfate	611.5	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/1/1998	Chlorine	244.5	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/16/1998	Uranium	0.0015	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/16/1998	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0931	9/16/1998	Sulfate	540	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/16/1998	Chlorine	223	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/20/1999	Uranium	0.0007	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/20/1999	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0931	4/20/1999	Sulfate	554	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/20/1999	Chlorine	211	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/14/1999	Uranium	0.0031	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/14/1999	Selenium	0.014	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/14/1999	Sulfate	535	mg/L	1
Upper Chinle Non-mixing Zone	0931	9/14/1999	Chlorine	220	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/6/2000	Uranium	0.0177	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/6/2000	Selenium	0.014	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/6/2000	Sulfate	709.5	mg/L	1
Upper Chinle Non-mixing Zone	0931	4/6/2000	Chlorine	282	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/30/2000	Uranium	0.002007	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/30/2000	Selenium	0.0115	mg/L	0
Upper Chinle Non-mixing Zone	0931	8/30/2000	Sulfate	572.5	mg/L	1
Upper Chinle Non-mixing Zone	0931	8/30/2000	Chlorine	144.5	mg/L	1
Upper Chinle Non-mixing Zone	0934	2/25/1982	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	0934	2/25/1982	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0934	2/25/1982	Sulfate	768	mg/L	1
Upper Chinle Non-mixing Zone	0934	2/25/1982	Chlorine	241	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/18/1989	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/18/1989	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0934	9/18/1989	Sulfate	786	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/18/1989	Chlorine	156	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/3/1990	Uranium	0.00848	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/3/1990	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/3/1990	Sulfate	732	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/3/1990	Chlorine	170	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/19/1991	Uranium	0.0424	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/19/1991	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0934	8/19/1991	Sulfate	748	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/19/1991	Chlorine	163	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/12/1992	Uranium	0.03392	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/12/1992	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	0934	8/12/1992	Sulfate	774	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/12/1992	Chlorine	156	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	0934	3/4/1993	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	0934	3/4/1993	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	0934	3/4/1993	Sulfate	821	mg/L	1
Upper Chinle Non-mixing Zone	0934	3/4/1993	Chlorine	163	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/31/1993	Uranium	0.014416	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/31/1993	Selenium	0.001	mg/L	0
Upper Chinle Non-mixing Zone	0934	8/31/1993	Sulfate	678	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/31/1993	Chlorine	163	mg/L	1
Upper Chinle Non-mixing Zone	0934	3/28/1994	Uranium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	0934	3/28/1994	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0934	3/28/1994	Sulfate	654	mg/L	1
Upper Chinle Non-mixing Zone	0934	3/28/1994	Chlorine	194	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/17/1994	Uranium	0.019	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/17/1994	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0934	8/17/1994	Sulfate	662	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/17/1994	Chlorine	161	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/17/1995	Uranium	0.027	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/17/1995	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0934	8/17/1995	Sulfate	727	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/17/1995	Chlorine	176	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/31/1996	Uranium	0.0173	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/31/1996	Selenium	0.063	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/31/1996	Sulfate	706	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/31/1996	Chlorine	163	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/14/1997	Uranium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/14/1997	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0934	4/14/1997	Sulfate	727	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/14/1997	Chlorine	131	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/3/1997	Uranium	0.014	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/3/1997	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0934	9/3/1997	Sulfate	733	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/3/1997	Chlorine	149	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/1/1998	Uranium	0.0259	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/1/1998	Selenium	0.009	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/1/1998	Sulfate	801	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/1/1998	Chlorine	148	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/24/1998	Uranium	0.016	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/24/1998	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	0934	9/24/1998	Sulfate	696	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/24/1998	Chlorine	125	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/20/1999	Uranium	0.0096	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/20/1999	Selenium	0.008	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/20/1999	Sulfate	705	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/20/1999	Chlorine	117	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/14/1999	Uranium	0.0287	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/14/1999	Selenium	0.025	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/14/1999	Sulfate	730	mg/L	1
Upper Chinle Non-mixing Zone	0934	9/14/1999	Chlorine	82.5	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/6/2000	Uranium	0.0593	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/6/2000	Selenium	0.029	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/6/2000	Sulfate	700	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/6/2000	Chlorine	83.3	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/30/2000	Uranium	0.022	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/30/2000	Selenium	0.018	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/30/2000	Sulfate	645	mg/L	1
Upper Chinle Non-mixing Zone	0934	8/30/2000	Chlorine	77.1	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/25/2001	Uranium	0.031	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/25/2001	Selenium	0.023	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	0934	7/25/2001	Sulfate	620	mg/L	1
Upper Chinle Non-mixing Zone	0934	2/26/2002	Uranium	0.051	mg/L	1
Upper Chinle Non-mixing Zone	0934	2/26/2002	Selenium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	0934	2/26/2002	Sulfate	629	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/22/2002	Uranium	0.361	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/22/2002	Selenium	0.029	mg/L	1
Upper Chinle Non-mixing Zone	0934	7/22/2002	Sulfate	691	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/28/2003	Uranium	0.0931	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/28/2003	Selenium	0.017	mg/L	1
Upper Chinle Non-mixing Zone	0934	4/28/2003	Sulfate	635	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	Uranium	0.045	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	Selenium	0.036	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	Sulfate	910	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	Chlorine	94.9	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	Uranium	0.046	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	Selenium	0.051	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	Sulfate	923	mg/L	1
Upper Chinle Non-mixing Zone	CW13	12/29/1994	Chlorine	92.2	mg/L	1
Upper Chinle Non-mixing Zone	CW13	2/11/1995	Uranium	0.05	mg/L	1
Upper Chinle Non-mixing Zone	CW13	2/11/1995	Selenium	0.244	mg/L	1
Upper Chinle Non-mixing Zone	CW13	2/11/1995	Sulfate	872	mg/L	1
Upper Chinle Non-mixing Zone	CW13	2/11/1995	Chlorine	80.2	mg/L	1
Upper Chinle Non-mixing Zone	CW13	5/28/1996	Uranium	0.05	mg/L	1
Upper Chinle Non-mixing Zone	CW13	5/28/1996	Selenium	0.102	mg/L	1
Upper Chinle Non-mixing Zone	CW13	5/28/1996	Sulfate	915	mg/L	1
Upper Chinle Non-mixing Zone	CW13	5/28/1996	Chlorine	85.3	mg/L	1
Upper Chinle Non-mixing Zone	CW13	6/14/1996	Uranium	0.096	mg/L	1
Upper Chinle Non-mixing Zone	CW13	6/14/1996	Selenium	0.191	mg/L	1
Upper Chinle Non-mixing Zone	CW13	6/14/1996	Sulfate	973	mg/L	1
Upper Chinle Non-mixing Zone	CW18	2/9/1995	Uranium	0.028	mg/L	1
Upper Chinle Non-mixing Zone	CW18	2/9/1995	Selenium	0.076	mg/L	1
Upper Chinle Non-mixing Zone	CW18	2/9/1995	Sulfate	661	mg/L	1
Upper Chinle Non-mixing Zone	CW18	2/9/1995	Chlorine	214	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/22/1995	Uranium	0.016	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/22/1995	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW18	11/22/1995	Sulfate	580	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/22/1995	Chlorine	199	mg/L	1
Upper Chinle Non-mixing Zone	CW18	8/27/1996	Uranium	0.135	mg/L	1
Upper Chinle Non-mixing Zone	CW18	8/27/1996	Selenium	0.129	mg/L	1
Upper Chinle Non-mixing Zone	CW18	8/27/1996	Sulfate	735	mg/L	1
Upper Chinle Non-mixing Zone	CW18	10/15/1996	Uranium	0.148	mg/L	1
Upper Chinle Non-mixing Zone	CW18	10/15/1996	Selenium	0.105	mg/L	1
Upper Chinle Non-mixing Zone	CW18	10/15/1996	Sulfate	744	mg/L	1
Upper Chinle Non-mixing Zone	CW18	10/15/1996	Chlorine	150	mg/L	1
Upper Chinle Non-mixing Zone	CW18	1/3/1997	Uranium	0.124	mg/L	1
Upper Chinle Non-mixing Zone	CW18	1/3/1997	Selenium	0.087	mg/L	1
Upper Chinle Non-mixing Zone	CW18	1/3/1997	Sulfate	728	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/17/1997	Uranium	0.113	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/17/1997	Selenium	0.068	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/17/1997	Sulfate	736	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/19/1997	Uranium	0.0954	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/19/1997	Selenium	0.048	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/19/1997	Sulfate	661	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/19/1997	Chlorine	168	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/14/1998	Uranium	0.0805	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/14/1998	Selenium	0.044	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/14/1998	Sulfate	726	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/4/1998	Uranium	0.085	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	CW18	11/4/1998	Selenium	0.034	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/4/1998	Sulfate	669	mg/L	1
Upper Chinle Non-mixing Zone	CW18	11/4/1998	Chlorine	188	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/22/1999	Uranium	0.0647	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/22/1999	Selenium	0.036	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/22/1999	Sulfate	697	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/20/2000	Uranium	0.0659	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/20/2000	Selenium	0.023	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/20/2000	Sulfate	646	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/24/2001	Uranium	0.046	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/24/2001	Selenium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/24/2001	Sulfate	565	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/23/2002	Uranium	0.039	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/23/2002	Selenium	0.021	mg/L	1
Upper Chinle Non-mixing Zone	CW18	7/23/2002	Sulfate	678	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/28/2003	Uranium	0.0416	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/28/2003	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW18	4/28/2003	Sulfate	655	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/29/1982	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	CW3	1/29/1982	Selenium	0.06	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/29/1982	Sulfate	886	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/29/1982	Chlorine	53	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/9/1982	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	CW3	3/9/1982	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	3/9/1982	Sulfate	851	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/9/1982	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/10/1982	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	CW3	3/10/1982	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	3/10/1982	Sulfate	857	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/10/1982	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/15/1982	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	CW3	7/15/1982	Sulfate	793	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/15/1982	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/15/1982	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	CW3	9/15/1982	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/15/1982	Sulfate	793	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/15/1982	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	12/23/1982	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	CW3	12/23/1982	Selenium	0.03	mg/L	1
Upper Chinle Non-mixing Zone	CW3	12/23/1982	Sulfate	833	mg/L	1
Upper Chinle Non-mixing Zone	CW3	12/23/1982	Chlorine	50	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/11/1983	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/11/1983	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/11/1983	Sulfate	770	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/11/1983	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/14/1983	Uranium	0.003392	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/14/1983	Selenium	0.05	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/14/1983	Sulfate	787	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/14/1983	Chlorine	57	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	Uranium	0.00848	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	Uranium	0.025	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	Selenium	0.007	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	Sulfate	764	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	Sulfate	844	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/28/1983	Chlorine	54.7	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/12/1983	Uranium	0.003392	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	CW3	9/12/1983	Selenium	0.03	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/12/1983	Sulfate	838	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/12/1983	Chlorine	21	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/27/1983	Uranium	0.010176	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/27/1983	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/27/1983	Sulfate	777	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/27/1983	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/6/1984	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/6/1984	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/6/1984	Sulfate	998	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/6/1984	Chlorine	28	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/14/1984	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/14/1984	Sulfate	819	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/4/1984	Uranium	0.010176	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/4/1984	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	4/4/1984	Sulfate	829	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/4/1984	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/26/1984	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	7/26/1984	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/26/1984	Sulfate	793	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/26/1984	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1984	Uranium	0.010176	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1984	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1984	Sulfate	788	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1984	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/17/1985	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/17/1985	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/17/1985	Sulfate	763	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/17/1985	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/10/1985	Uranium	0.02544	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/10/1985	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/10/1985	Sulfate	795	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/10/1985	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1985	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1985	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1985	Sulfate	825	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1985	Chlorine	28	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/4/1985	Uranium	0.00848	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/4/1985	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/4/1985	Sulfate	807	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/4/1985	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/9/1986	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/9/1986	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/9/1986	Sulfate	815	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/9/1986	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/8/1986	Uranium	0.010176	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/8/1986	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/8/1986	Sulfate	937	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/8/1986	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/16/1986	Uranium	0.020352	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/16/1986	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	7/16/1986	Sulfate	783	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/16/1986	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/13/1986	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/13/1986	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/13/1986	Sulfate	798	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/13/1986	Chlorine	28	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/8/1987	Uranium	0.01	mg/L	0

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	CW3	1/8/1987	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/8/1987	Sulfate	768	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/8/1987	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/9/1987	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/9/1987	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/9/1987	Sulfate	772	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/9/1987	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1987	Uranium	0.05088	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1987	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1987	Sulfate	816	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/22/1987	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/15/1987	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	10/15/1987	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/15/1987	Sulfate	790	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/15/1987	Chlorine	21	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1988	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/2/1988	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1988	Sulfate	785	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1988	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/20/1988	Uranium	0.03392	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/20/1988	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/20/1988	Sulfate	811	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/20/1988	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/20/1988	Uranium	0.02544	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/20/1988	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/20/1988	Sulfate	846	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/20/1988	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1988	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1988	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1988	Sulfate	845	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/12/1988	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/24/1989	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	1/24/1989	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/24/1989	Sulfate	820	mg/L	1
Upper Chinle Non-mixing Zone	CW3	1/24/1989	Chlorine	57	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/25/1989	Uranium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	4/25/1989	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/25/1989	Sulfate	867	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/25/1989	Chlorine	57	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/15/1989	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/15/1989	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/15/1989	Sulfate	843	mg/L	1
Upper Chinle Non-mixing Zone	CW3	9/15/1989	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/29/1989	Uranium	0.0424	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/29/1989	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/29/1989	Sulfate	843	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/15/1990	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/15/1990	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/15/1990	Sulfate	831	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/15/1990	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/8/1990	Uranium	0.0424	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/8/1990	Selenium	0.01	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/8/1990	Sulfate	840	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/20/1990	Uranium	0.05088	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/20/1990	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	5/20/1990	Sulfate	942	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/7/1990	Uranium	0.07632	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/7/1990	Selenium	0.01	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	CW3	8/7/1990	Sulfate	811	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/7/1990	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/27/1990	Uranium	0.00848	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/27/1990	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/27/1990	Sulfate	743	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/27/1990	Selenium	0.002	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/27/1990	Sulfate	767	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/19/1991	Uranium	0.03392	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/19/1991	Selenium	0.02	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/19/1991	Sulfate	760	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/19/1991	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/15/1991	Uranium	0.06784	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/15/1991	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	5/15/1991	Sulfate	793	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/13/1991	Uranium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/13/1991	Uranium	0.06784	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/13/1991	Selenium	0.002	mg/L	0
Upper Chinle Non-mixing Zone	CW3	8/13/1991	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	8/13/1991	Sulfate	716	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/13/1991	Sulfate	796	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/13/1991	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/13/1991	Chlorine	85	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/26/1991	Uranium	0.05088	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/26/1991	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/26/1991	Sulfate	805	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/20/1992	Uranium	0.06784	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/20/1992	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/20/1992	Sulfate	823	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/20/1992	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/20/1992	Uranium	0.05088	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/20/1992	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	5/20/1992	Sulfate	942	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/29/1992	Uranium	0.01696	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/29/1992	Uranium	0.0636	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/29/1992	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	7/29/1992	Selenium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/29/1992	Sulfate	754	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/29/1992	Sulfate	789	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/29/1992	Chlorine	35	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/29/1992	Chlorine	42.5	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/4/1992	Uranium	0.02544	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/4/1992	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/4/1992	Sulfate	793	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/8/1993	Uranium	0.05088	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/8/1993	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/8/1993	Sulfate	827	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/8/1993	Chlorine	43	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/4/1993	Uranium	0.02544	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/4/1993	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	5/4/1993	Sulfate	876	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/11/1993	Uranium	0.010176	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/11/1993	Uranium	0.05936	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/11/1993	Selenium	0.001	mg/L	0
Upper Chinle Non-mixing Zone	CW3	8/11/1993	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	8/11/1993	Sulfate	646	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/11/1993	Sulfate	769	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/11/1993	Chlorine	40.7	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/11/1993	Chlorine	43	mg/L	1

Attachment 1: Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	CW3	11/1/1993	Uranium	0.011	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/1/1993	Selenium	0.001	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/1/1993	Sulfate	693	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1994	Uranium	0.019	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1994	Selenium	0.007	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1994	Sulfate	735	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1994	Chlorine	43.2	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1994	Uranium	0.025	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1994	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/2/1994	Sulfate	737	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1994	Chlorine	46.8	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/9/1994	Uranium	0.027	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/9/1994	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	3/9/1994	Sulfate	752	mg/L	1
Upper Chinle Non-mixing Zone	CW3	3/9/1994	Chlorine	43.2	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/3/1994	Uranium	0.027	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/3/1994	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	5/3/1994	Sulfate	744	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/1/1994	Uranium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/1/1994	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	8/1/1994	Sulfate	788	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/1/1994	Chlorine	41.9	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/1/1994	Uranium	0.027	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/1/1994	Selenium	0.005	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/1/1994	Sulfate	789	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1995	Uranium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1995	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/2/1995	Sulfate	699	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/2/1995	Chlorine	43.4	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/5/1995	Uranium	0.017	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/5/1995	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	5/5/1995	Sulfate	566	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/2/1995	Uranium	0.025	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/2/1995	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	8/2/1995	Sulfate	718	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/2/1995	Chlorine	40	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/15/1995	Uranium	0.033	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/15/1995	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/15/1995	Sulfate	743	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/27/1995	Uranium	0.0245	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/27/1995	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/27/1995	Sulfate	695	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/27/1995	Chlorine	41	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/12/1996	Uranium	0.03	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/12/1996	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/12/1996	Sulfate	712	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/12/1996	Chlorine	49.4	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/14/1996	Uranium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/14/1996	Selenium	0.01	mg/L	0
Upper Chinle Non-mixing Zone	CW3	5/14/1996	Sulfate	731	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/31/1996	Uranium	0.0281	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/31/1996	Selenium	0.003	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/31/1996	Sulfate	741	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/31/1996	Chlorine	41.3	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/4/1996	Uranium	0.0266	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/4/1996	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/4/1996	Sulfate	730	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/4/1996	Chlorine	45.2	mg/L	1

Attachment 1:

Raw Data Used in the Statistical Review of GWPS Values

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	CW3	2/3/1997	Uranium	0.026	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/3/1997	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/3/1997	Sulfate	743	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/3/1997	Chlorine	45.4	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/29/1997	Uranium	0.028	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/29/1997	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	4/29/1997	Sulfate	712	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/28/1997	Uranium	0.028	mg/L	1
Upper Chinle Non-mixing Zone	CW3	7/28/1997	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	7/28/1997	Sulfate	786	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/13/1997	Uranium	0.028	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/13/1997	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	10/13/1997	Sulfate	770	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/13/1997	Chlorine	41.5	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/10/1998	Uranium	0.0294	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/10/1998	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/10/1998	Sulfate	723	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/10/1998	Chlorine	42	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/5/1998	Uranium	0.0389	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/5/1998	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	5/5/1998	Sulfate	746	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/4/1998	Uranium	0.0315	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/4/1998	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	8/4/1998	Sulfate	757	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/4/1998	Chlorine	44	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/28/1998	Uranium	0.031	mg/L	1
Upper Chinle Non-mixing Zone	CW3	10/28/1998	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	10/28/1998	Sulfate	844	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/3/1999	Uranium	0.0328	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/3/1999	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/3/1999	Sulfate	757	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/3/1999	Chlorine	46.7	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/11/1999	Uranium	0.0307	mg/L	1
Upper Chinle Non-mixing Zone	CW3	5/11/1999	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	5/11/1999	Sulfate	757	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/17/1999	Uranium	0.032	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/17/1999	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	8/17/1999	Sulfate	716	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/17/1999	Chlorine	45.3	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/9/1999	Uranium	0.025	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/9/1999	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/9/1999	Sulfate	771	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/8/2000	Uranium	0.0265	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/8/2000	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	2/8/2000	Sulfate	743.5	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/8/2000	Chlorine	46.7	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/27/2000	Uranium	0.029	mg/L	1
Upper Chinle Non-mixing Zone	CW3	4/27/2000	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	4/27/2000	Sulfate	818	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/2/2000	Uranium	0.01546	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/2/2000	Selenium	0.0075	mg/L	0
Upper Chinle Non-mixing Zone	CW3	8/2/2000	Sulfate	684	mg/L	1
Upper Chinle Non-mixing Zone	CW3	8/2/2000	Chlorine	43.4	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/28/2000	Uranium	0.02396	mg/L	1
Upper Chinle Non-mixing Zone	CW3	11/28/2000	Selenium	0.005	mg/L	0
Upper Chinle Non-mixing Zone	CW3	11/28/2000	Sulfate	741	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/13/2001	Uranium	0.03521	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/13/2001	Selenium	0.009	mg/L	1

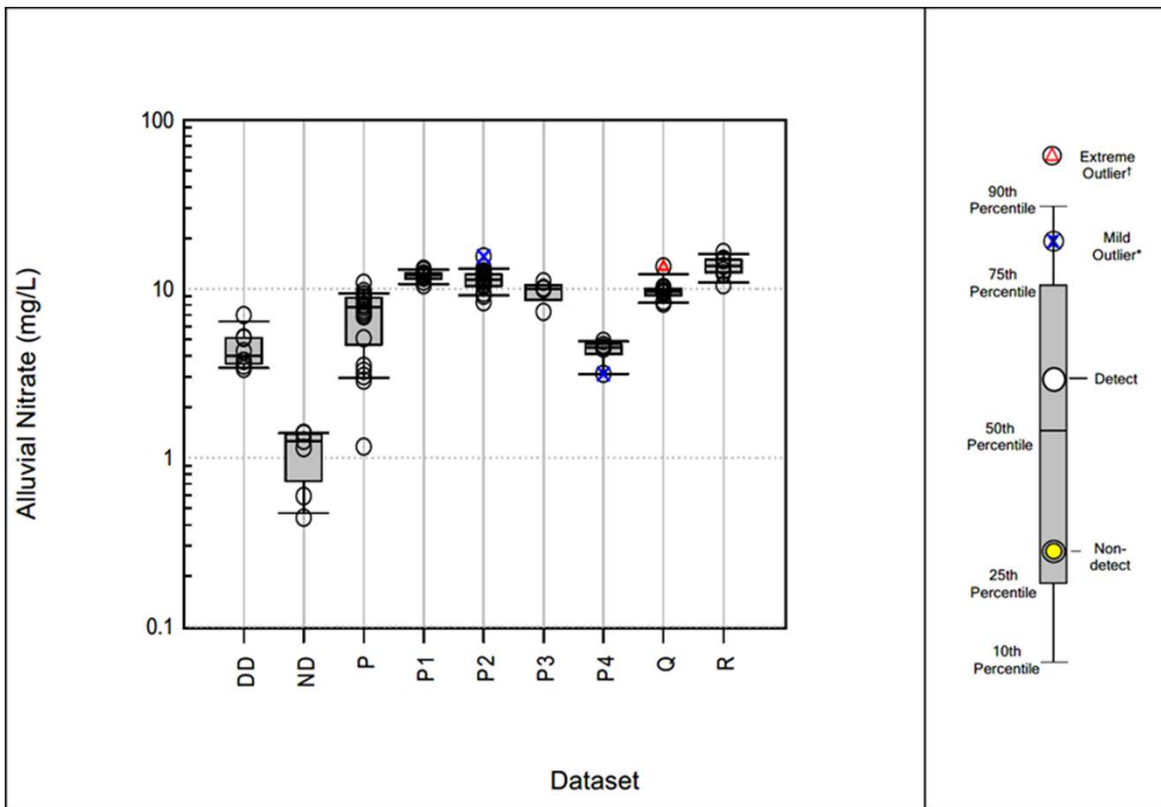
Attachment 1:**Raw Data Used in the Statistical Review of GWPS Values**

Zone	Well ID	Sampling Date	Analyte	Result (mg/L)	Units	Detected
Upper Chinle Non-mixing Zone	CW3	2/13/2001	Sulfate	738	mg/L	1
Upper Chinle Non-mixing Zone	CW3	2/13/2001	Chlorine	56.8	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/5/2001	Uranium	0.034	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/5/2001	Selenium	0.007	mg/L	1
Upper Chinle Non-mixing Zone	CW3	6/5/2001	Sulfate	755	mg/L	1

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ARCADIS		Box and Whisker Plot Alluvial Nitrate Grants Reclamation Project										Figure 2.1		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
DD	mg/L	0	8	8	NA	NA	3.4	7.0	4.5	4.0	1.2	3.6	4.0	5.1
ND	mg/L	0	7	7	NA	NA	0.44	1.4	1.1	1.3	0.40	0.73	1.3	1.4
P	mg/L	0	21	21	NA	NA	1.2	10.8	6.9	7.8	2.7	4.7	7.8	8.9
P1	mg/L	0	9	9	NA	NA	10.5	13.1	11.9	12.1	0.82	11.4	12.1	12.4
P2	mg/L	0	17	17	NA	NA	8.3	15.5	11.3	11.3	1.7	10.4	11.3	12.2
P3	mg/L	0	4	4	NA	NA	7.3	11.0	9.6	10.0	1.6	8.6	10.0	10.6
P4	mg/L	0	5	5	NA	NA	3.1	4.9	4.3	4.5	0.69	4.1	4.5	4.7
Q	mg/L	0	9	9	NA	NA	8.2	13.5	9.8	9.6	1.5	9.1	9.6	10.1
R	mg/L	0	7	7	NA	NA	10.5	16.4	13.6	13.6	2.0	12.4	13.6	14.9
pooled	mg/L	0	87	87	NA	NA	0.44	16.4	8.4	9.3	4.0	4.9	9.3	11.4

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

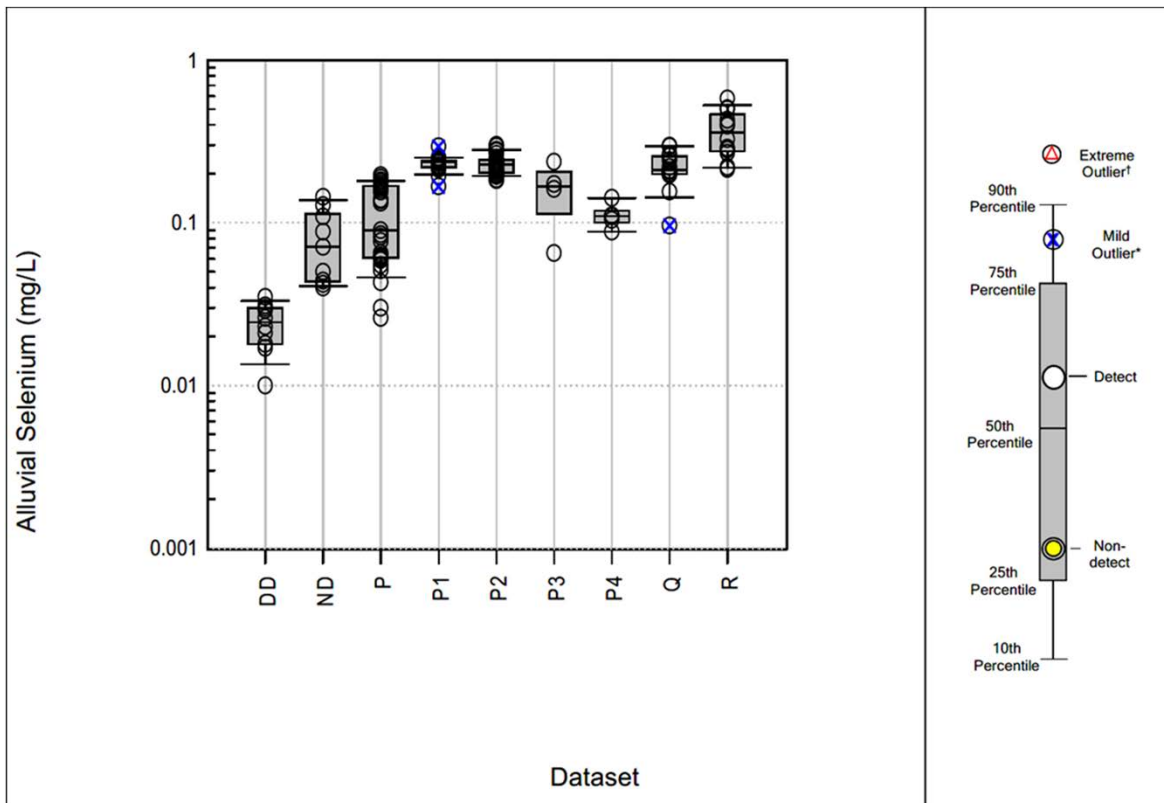
ND = nondetect

SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.



ARCADIS		Box and Whisker Plot Alluvial Selenium Grants Reclamation Project										Figure 2.2		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
DD	mg/L	0	10	10	NA	NA	0.01	0.04	0.02	0.02	0.0076	0.02	0.02	0.03
ND	mg/L	0	9	9	NA	NA	0.04	0.14	0.08	0.07	0.04	0.04	0.07	0.11
P	mg/L	0	29	29	NA	NA	0.03	0.20	0.11	0.09	0.06	0.06	0.09	0.17
P1	mg/L	0	17	17	NA	NA	0.17	0.29	0.23	0.24	0.03	0.22	0.24	0.24
P2	mg/L	0	25	25	NA	NA	0.18	0.30	0.23	0.23	0.03	0.20	0.23	0.24
P3	mg/L	0	4	4	NA	NA	0.07	0.24	0.16	0.17	0.07	0.11	0.17	0.20
P4	mg/L	0	5	5	NA	NA	0.09	0.14	0.11	0.11	0.02	0.10	0.11	0.12
Q	mg/L	0	13	13	NA	NA	0.10	0.30	0.22	0.21	0.06	0.20	0.21	0.26
R	mg/L	0	12	12	NA	NA	0.21	0.58	0.37	0.36	0.12	0.28	0.36	0.46
pooled	mg/L	0	124	124	NA	NA	0.01	0.58	0.18	0.19	0.11	0.09	0.19	0.24

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

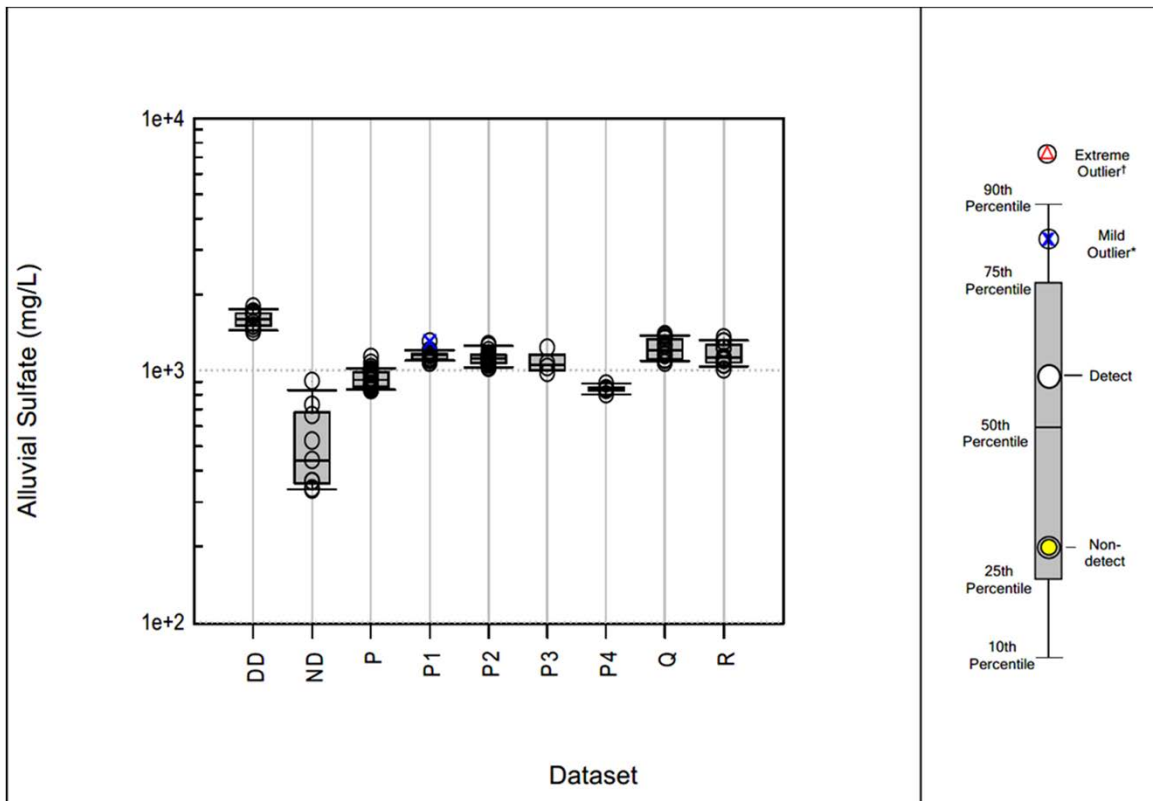
ND = nondetect


SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.





Box and Whisker Plot
Alluvial Sulfate
Grants Reclamation Project

Figure
2.3

Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
DD	mg/L	0	10	10	NA	NA	1,420	1,790	1,594	1,596	125	1,500	1,596	1,683
ND	mg/L	0	9	9	NA	NA	335	907	518	440	205	357	440	680
P	mg/L	0	29	29	NA	NA	833	1,130	926	916	77.5	863	916	983
P1	mg/L	0	17	17	NA	NA	1,069	1,300	1,145	1,150	55.0	1,106	1,150	1,166
P2	mg/L	0	25	25	NA	NA	1,020	1,270	1,122	1,115	68.4	1,070	1,115	1,152
P3	mg/L	0	4	4	NA	NA	975	1,230	1,076	1,050	110	1,003	1,050	1,150
P4	mg/L	0	5	5	NA	NA	803	885	842	838	29.4	828	838	857
Q	mg/L	0	13	13	NA	NA	1,070	1,390	1,218	1,200	113	1,105	1,200	1,333
R	mg/L	0	12	12	NA	NA	1,007	1,350	1,163	1,125	113	1,075	1,125	1,263
pooled	mg/L	0	124	124	NA	NA	335	1,790	1,075	1,100	256	929	1,100	1,174

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

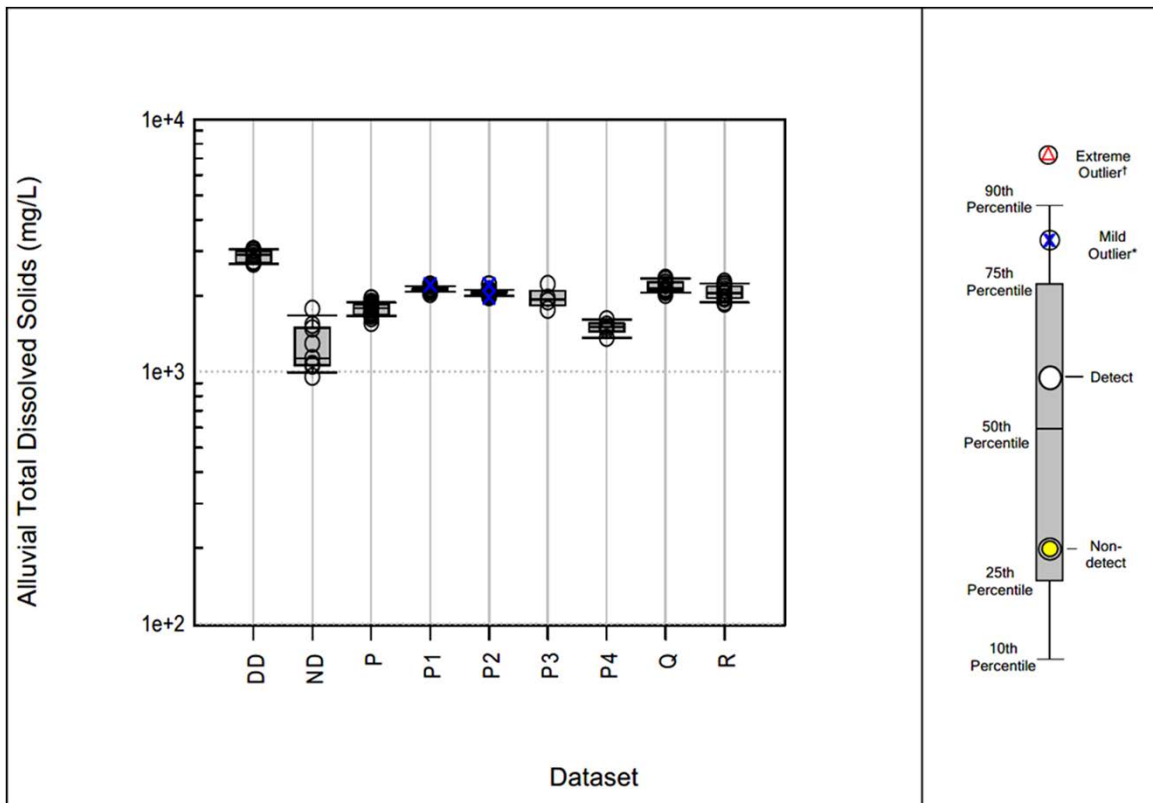
ND = nondetect

SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

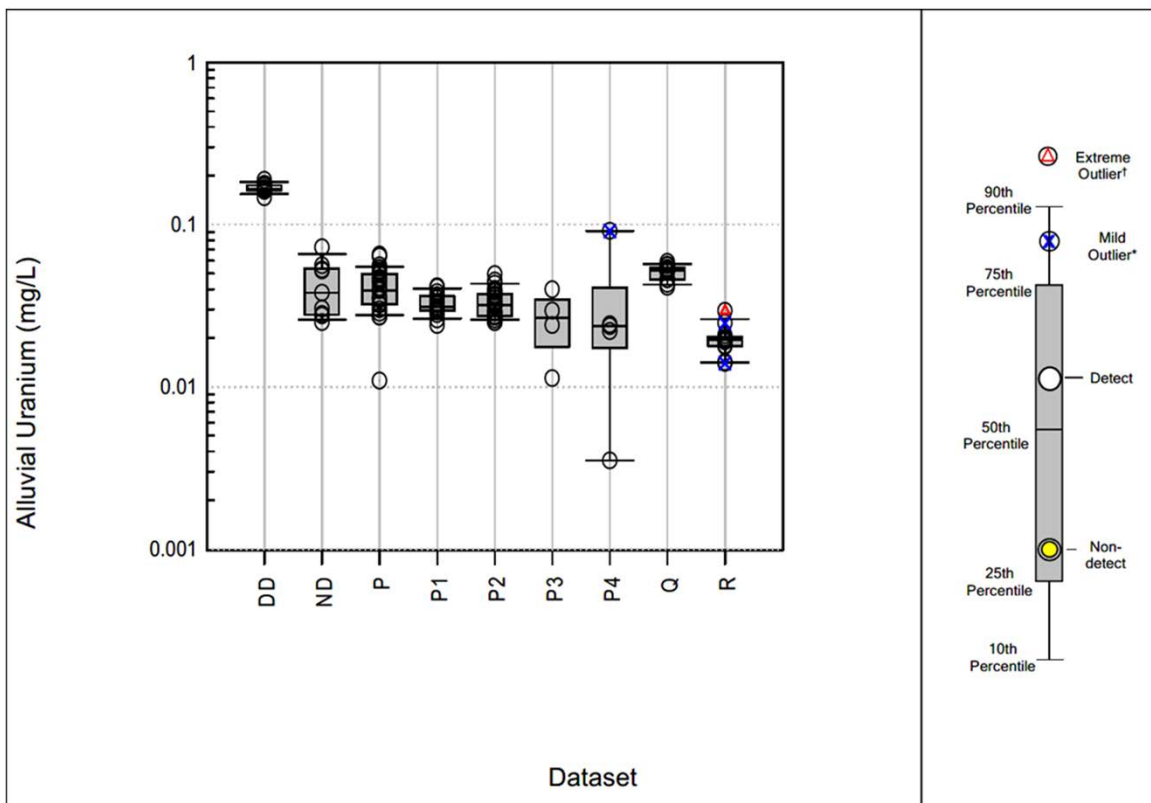
Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.



ARCADIS		Box and Whisker Plot Alluvial Total Dissolved Solids Grants Reclamation Project										Figure 2.4		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
DD	mg/L	0	10	10	NA	NA	2,680	3,054	2,867	2,900	153	2,710	2,900	3,010
ND	mg/L	0	9	9	NA	NA	954	1,770	1,260	1,130	276	1,059	1,130	1,493
P	mg/L	0	29	29	NA	NA	1,560	1,950	1,766	1,790	98.0	1,680	1,790	1,845
P1	mg/L	0	17	17	NA	NA	2,030	2,210	2,111	2,104	43.6	2,087	2,104	2,133
P2	mg/L	0	25	25	NA	NA	1,970	2,210	2,074	2,070	53.8	2,050	2,070	2,094
P3	mg/L	0	4	4	NA	NA	1,760	2,220	1,960	1,930	193	1,830	1,930	2,090
P4	mg/L	0	5	5	NA	NA	1,360	1,610	1,494	1,500	91.3	1,443	1,500	1,550
Q	mg/L	0	13	13	NA	NA	2,015	2,350	2,176	2,140	114	2,082	2,140	2,265
R	mg/L	0	12	12	NA	NA	1,862	2,270	2,063	2,050	134	1,957	2,050	2,185
pooled	mg/L	0	124	124	NA	NA	954	3,054	1,995	2,050	380	1,795	2,050	2,117

Notes:

- † Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- * Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR
- = no data
- IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)
- NA = value not applicable due to frequency of detection
- ND = nondetect
- SD = standard deviation
- Reporting limit is used for nondetects unless otherwise noted.
- Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.
- Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.



ARCADIS		Box and Whisker Plot Alluvial Uranium Grants Reclamation Project										Figure 2.5		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
DD	mg/L	0	10	10	NA	NA	0.15	0.19	0.17	0.17	0.01	0.16	0.17	0.17
ND	mg/L	0	9	9	NA	NA	0.03	0.07	0.04	0.04	0.02	0.03	0.04	0.05
P	mg/L	0	29	29	NA	NA	0.01	0.07	0.04	0.04	0.01	0.03	0.04	0.05
P1	mg/L	0	17	17	NA	NA	0.02	0.04	0.03	0.03	0.005	0.03	0.03	0.04
P2	mg/L	0	25	25	NA	NA	0.03	0.05	0.03	0.03	0.0066	0.03	0.03	0.04
P3	mg/L	0	4	4	NA	NA	0.01	0.04	0.03	0.03	0.01	0.02	0.03	0.04
P4	mg/L	0	5	5	NA	NA	0.0035	0.09	0.03	0.02	0.03	0.02	0.02	0.04
Q	mg/L	0	13	13	NA	NA	0.04	0.06	0.05	0.05	0.0053	0.05	0.05	0.05
R	mg/L	0	12	12	NA	NA	0.01	0.03	0.02	0.02	0.0042	0.02	0.02	0.02
pooled	mg/L	0	124	124	NA	NA	0.0035	0.19	0.05	0.04	0.04	0.03	0.04	0.05

Notes:

- † Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- * Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR
- = no data
- IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)
- NA = value not applicable due to frequency of detection
- ND = nondetect
- SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

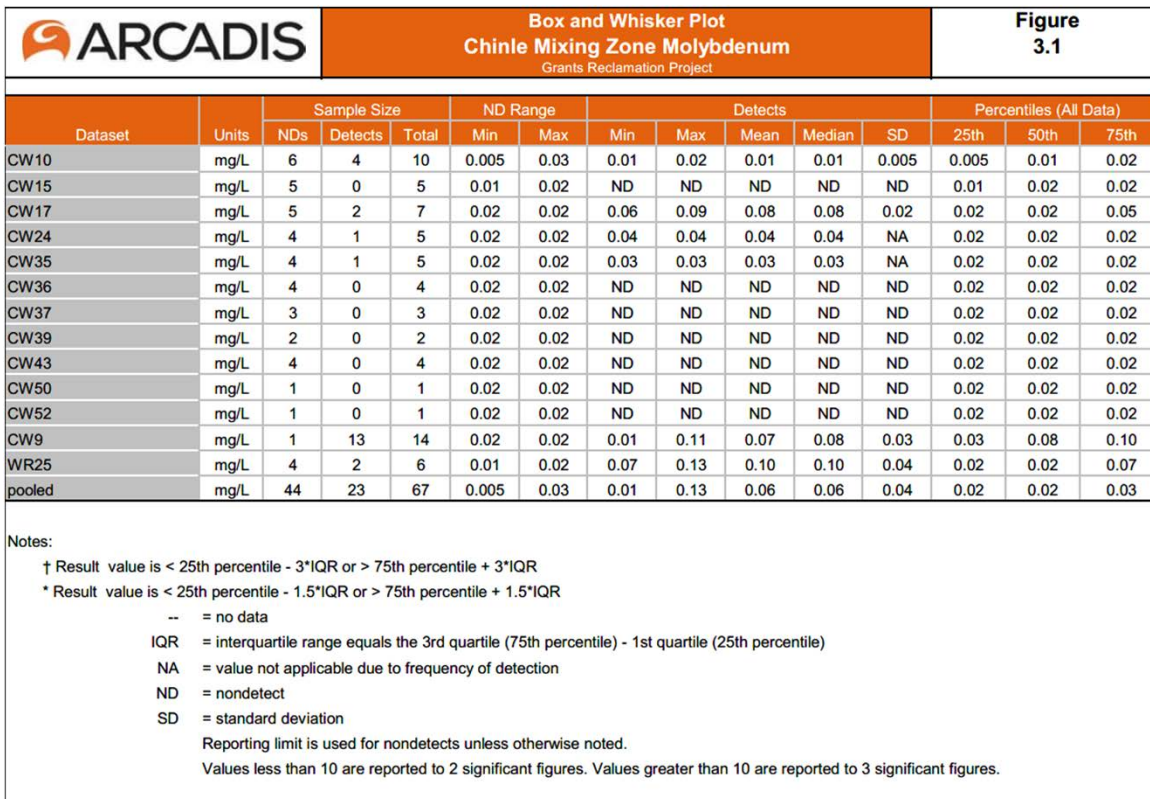
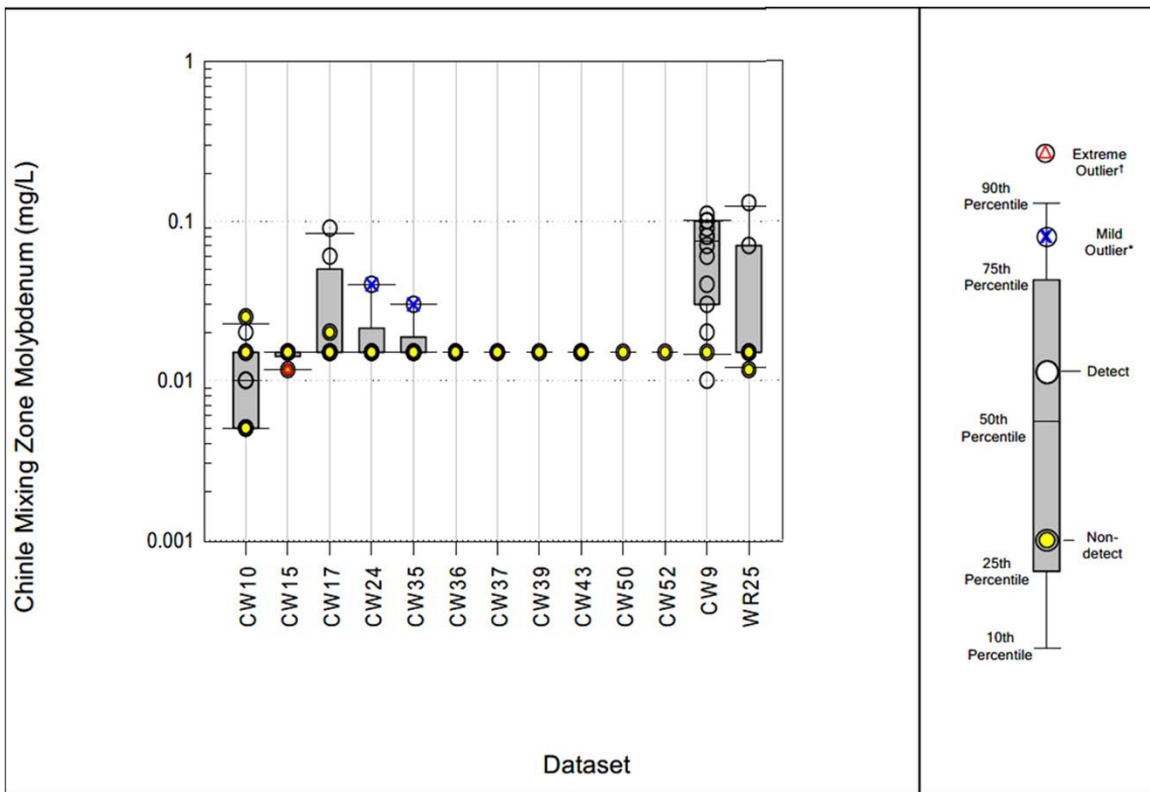
Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

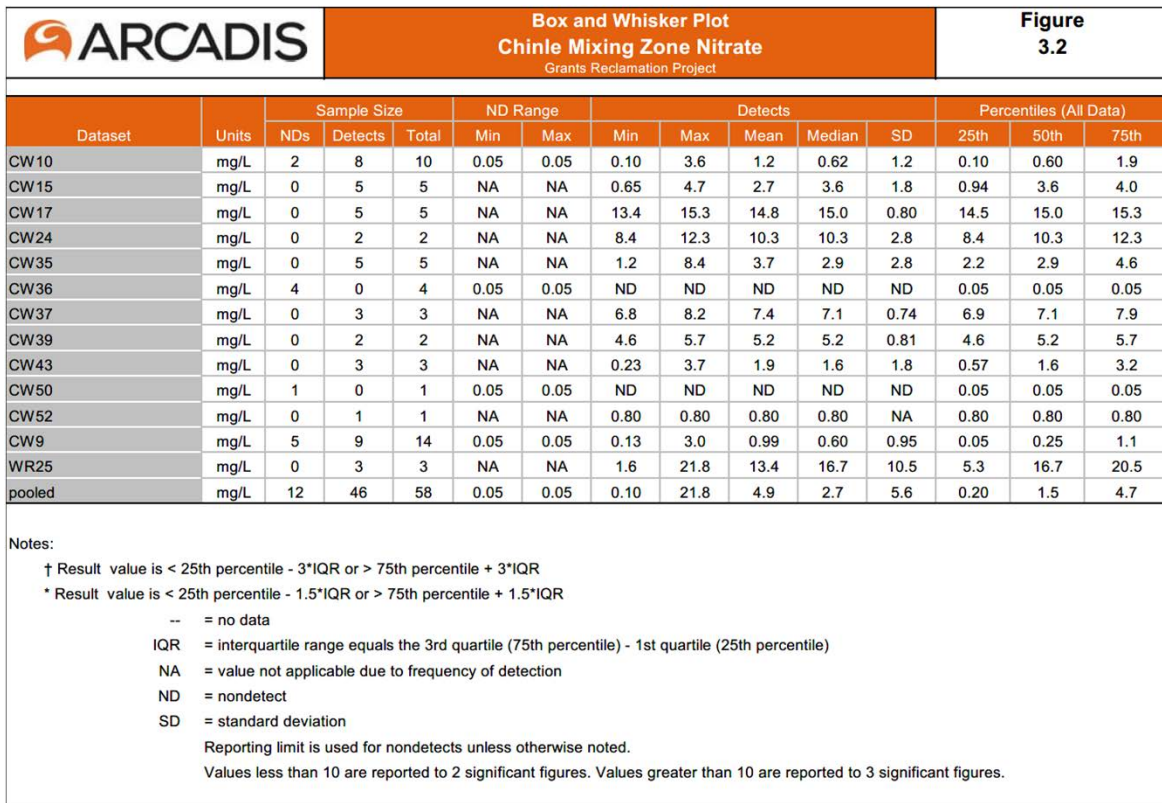
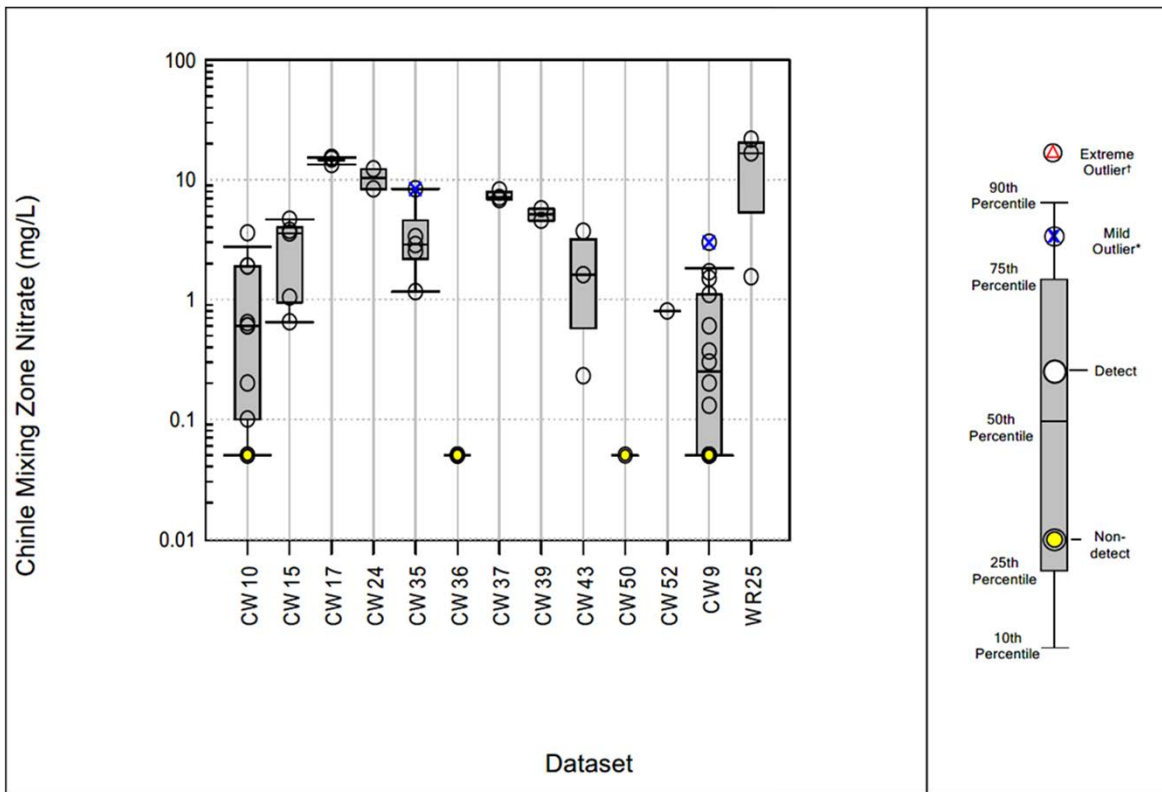
Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.

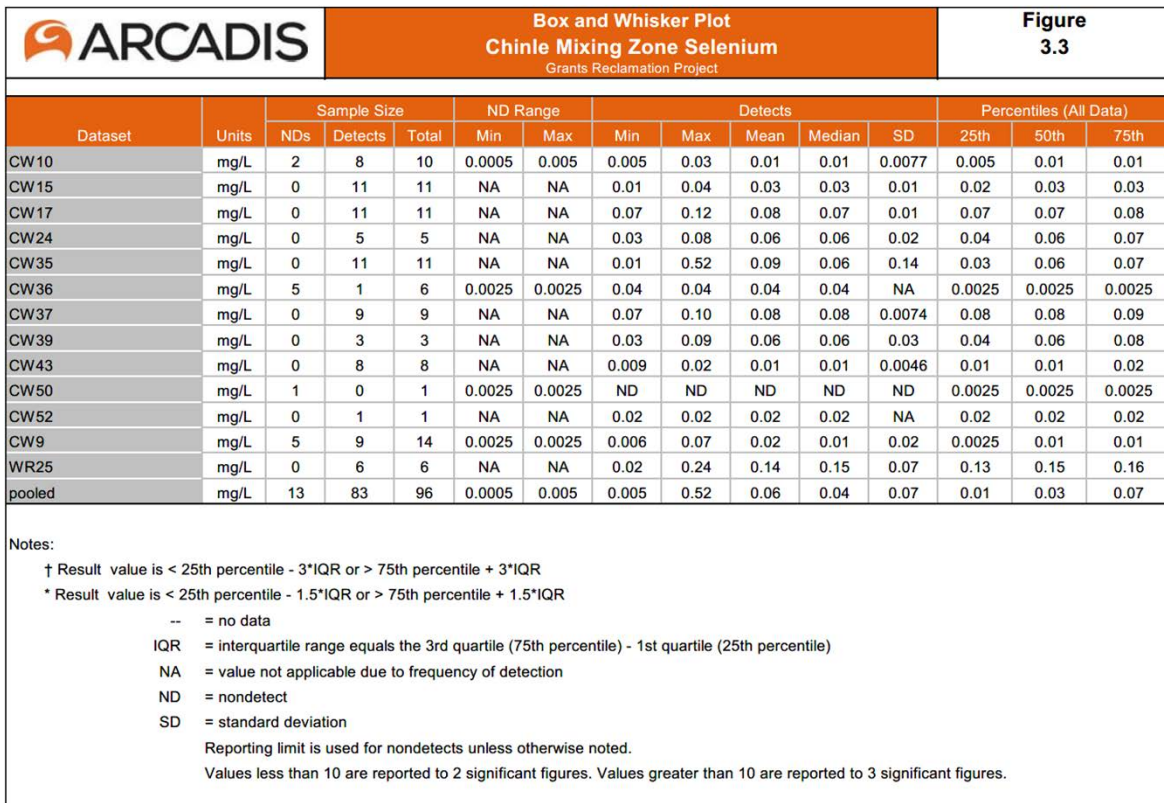
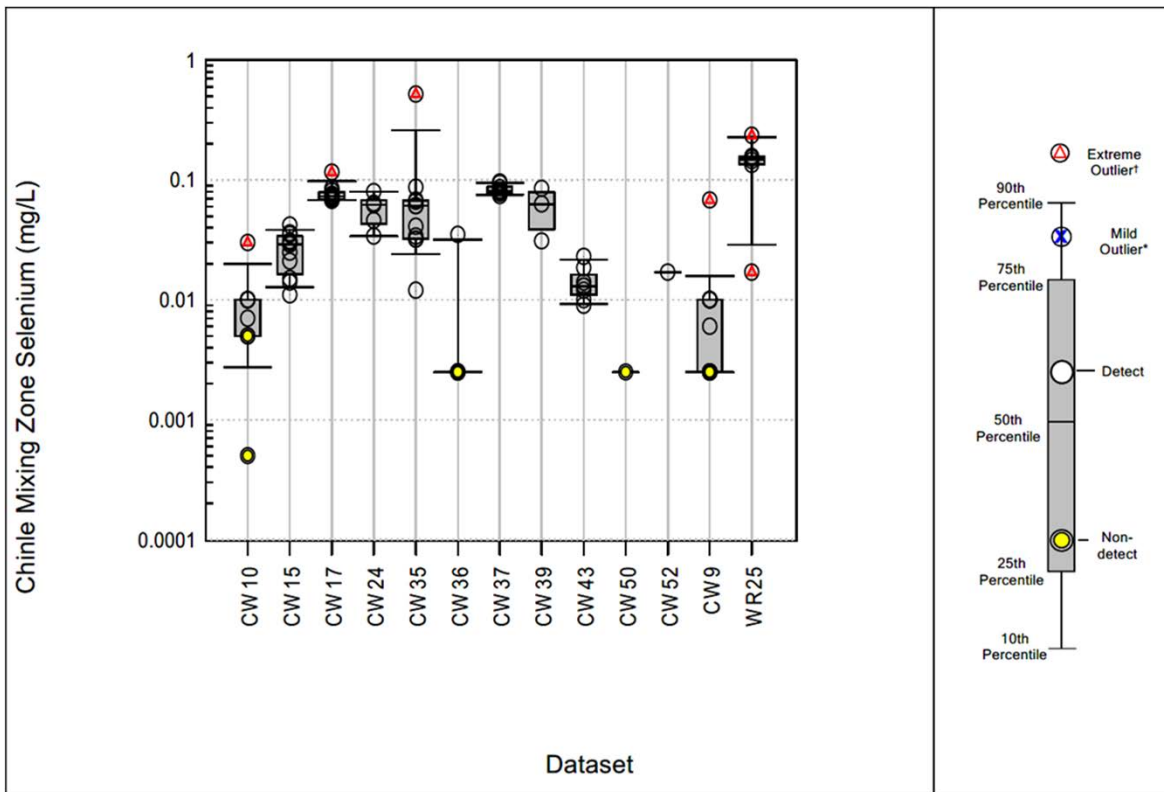
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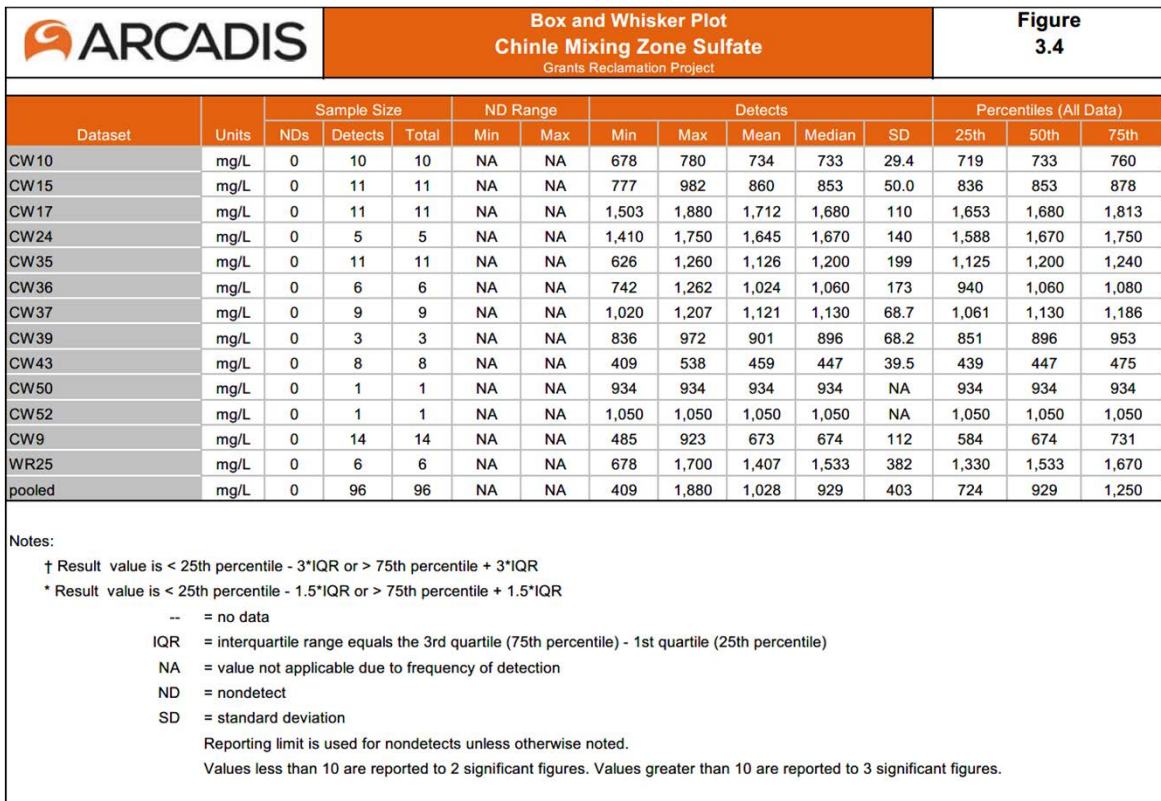
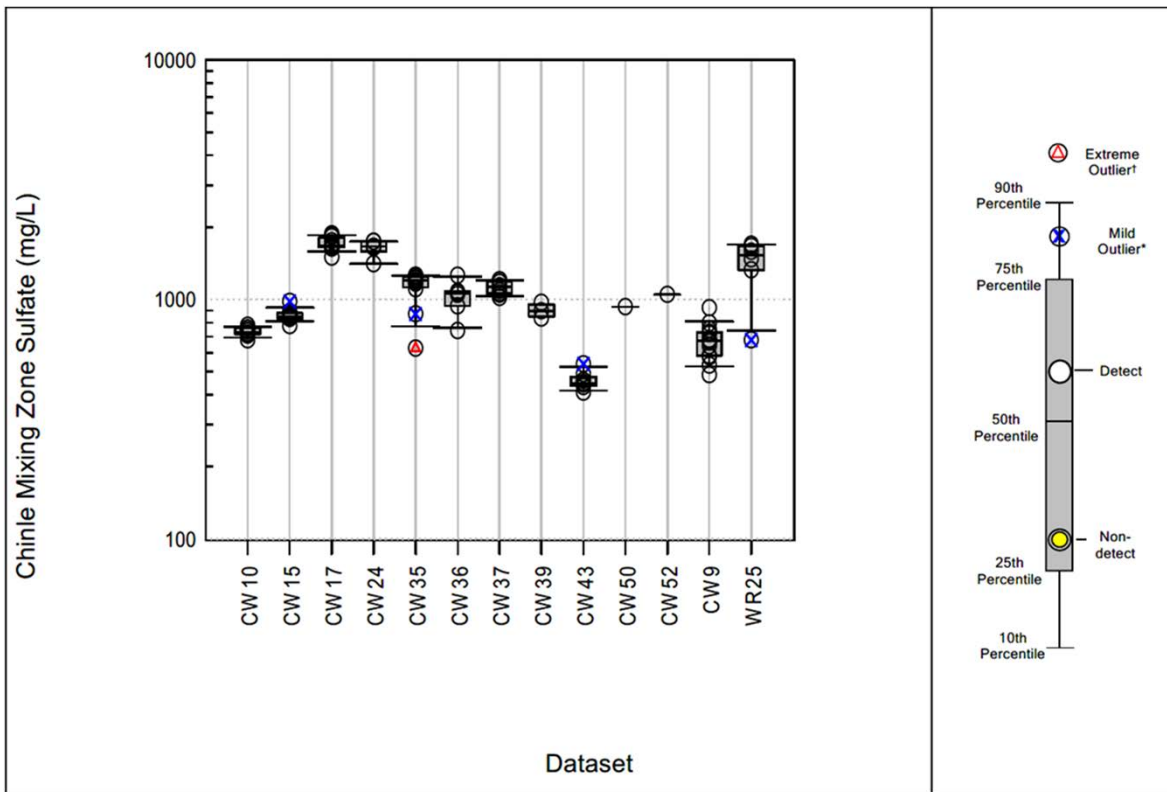
Chinle Mixing Zone

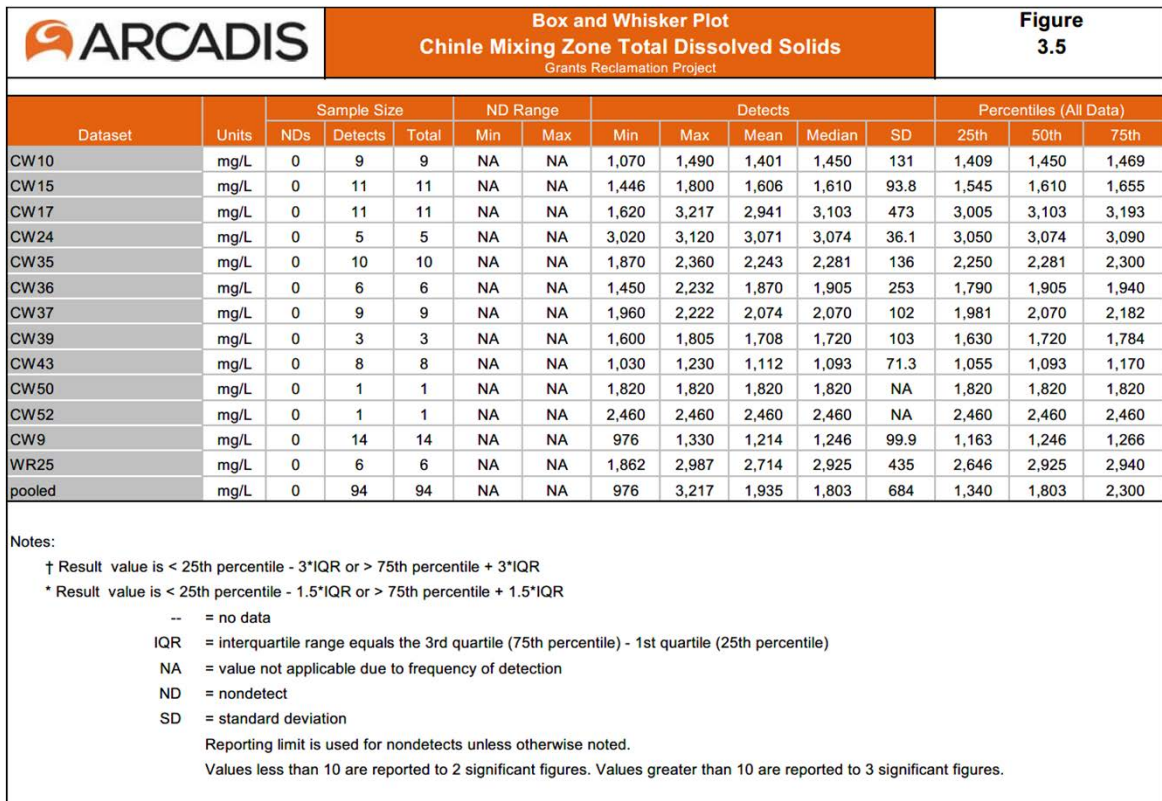
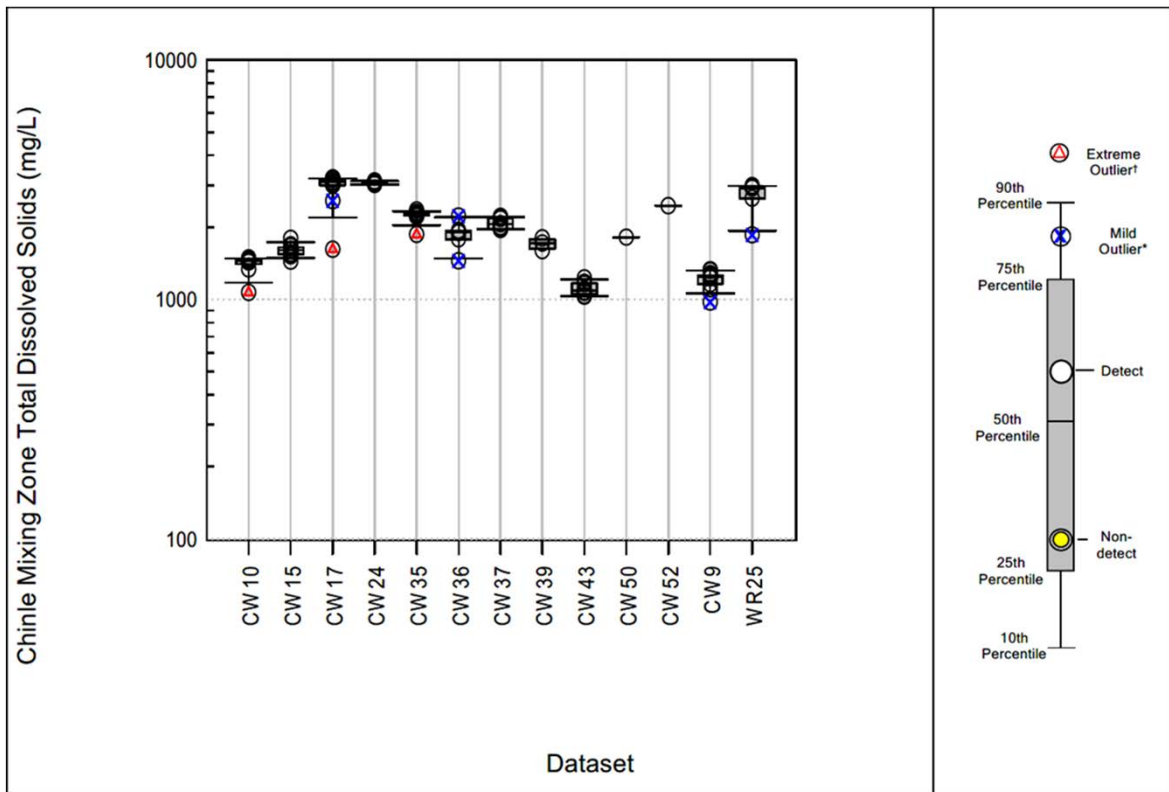


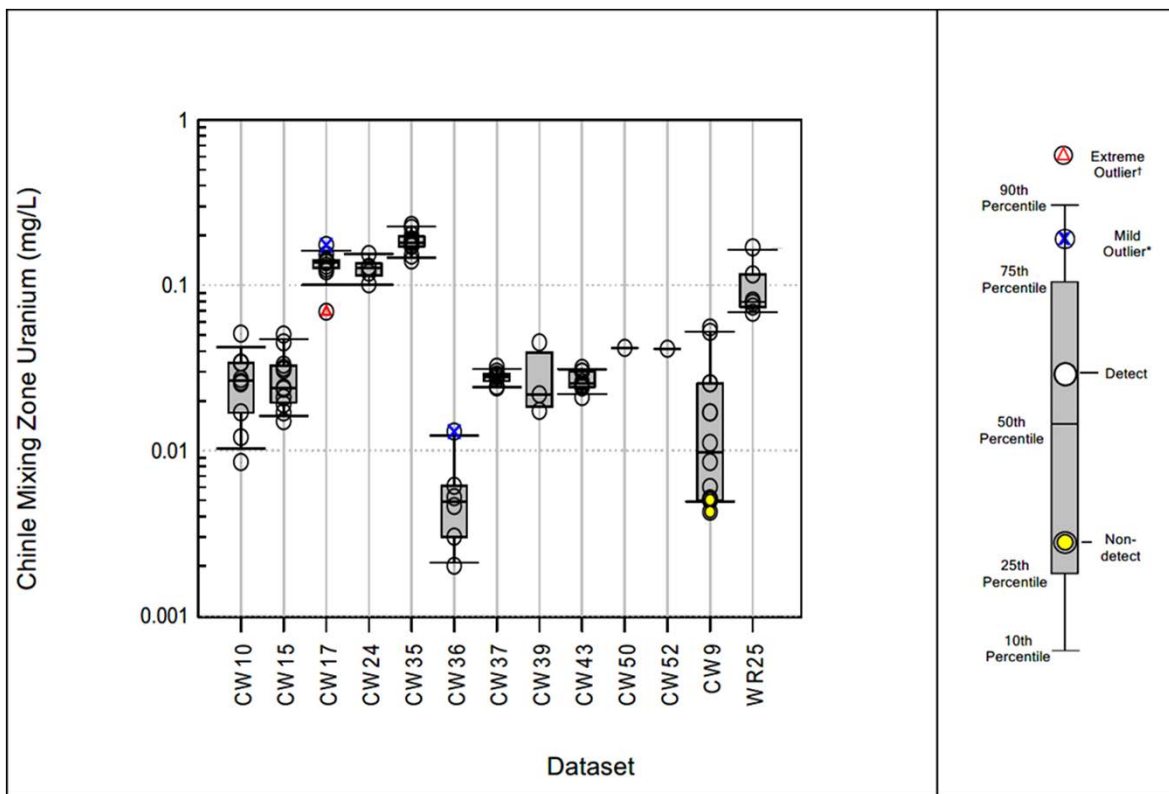












ARCADIS		Box and Whisker Plot Chinle Mixing Zone Uranium Grants Reclamation Project										Figure 3.6		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
CW10	mg/L	0	10	10	NA	NA	0.00848	0.05	0.03	0.03	0.01	0.02	0.03	0.03
CW15	mg/L	0	11	11	NA	NA	0.02	0.05	0.03	0.02	0.01	0.02	0.02	0.03
CW17	mg/L	0	11	11	NA	NA	0.07	0.18	0.13	0.14	0.03	0.13	0.14	0.14
CW24	mg/L	0	5	5	NA	NA	0.10	0.15	0.13	0.13	0.02	0.11	0.13	0.14
CW35	mg/L	0	11	11	NA	NA	0.14	0.23	0.18	0.18	0.03	0.17	0.18	0.20
CW36	mg/L	0	6	6	NA	NA	0.002	0.01	0.0057	0.0049	0.0039	0.003	0.0049	0.0061
CW37	mg/L	0	9	9	NA	NA	0.02	0.03	0.03	0.03	0.0025	0.03	0.03	0.03
CW39	mg/L	0	3	3	NA	NA	0.02	0.05	0.03	0.02	0.02	0.02	0.02	0.04
CW43	mg/L	0	8	8	NA	NA	0.02	0.03	0.03	0.03	0.0036	0.02	0.03	0.03
CW50	mg/L	0	1	1	NA	NA	0.04	0.04	0.04	0.04	NA	0.04	0.04	0.04
CW52	mg/L	0	1	1	NA	NA	0.04	0.04	0.04	0.04	NA	0.04	0.04	0.04
CW9	mg/L	2	12	14	0.00424	0.005	0.005	0.06	0.02	0.01	0.02	0.005	0.0098	0.03
WR25	mg/L	0	6	6	NA	NA	0.07	0.17	0.10	0.08	0.04	0.07	0.08	0.12
pooled	mg/L	2	94	96	0.00424	0.005	0.002	0.23	0.07	0.03	0.06	0.02	0.03	0.12

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

ND = nondetect

SD = standard deviation

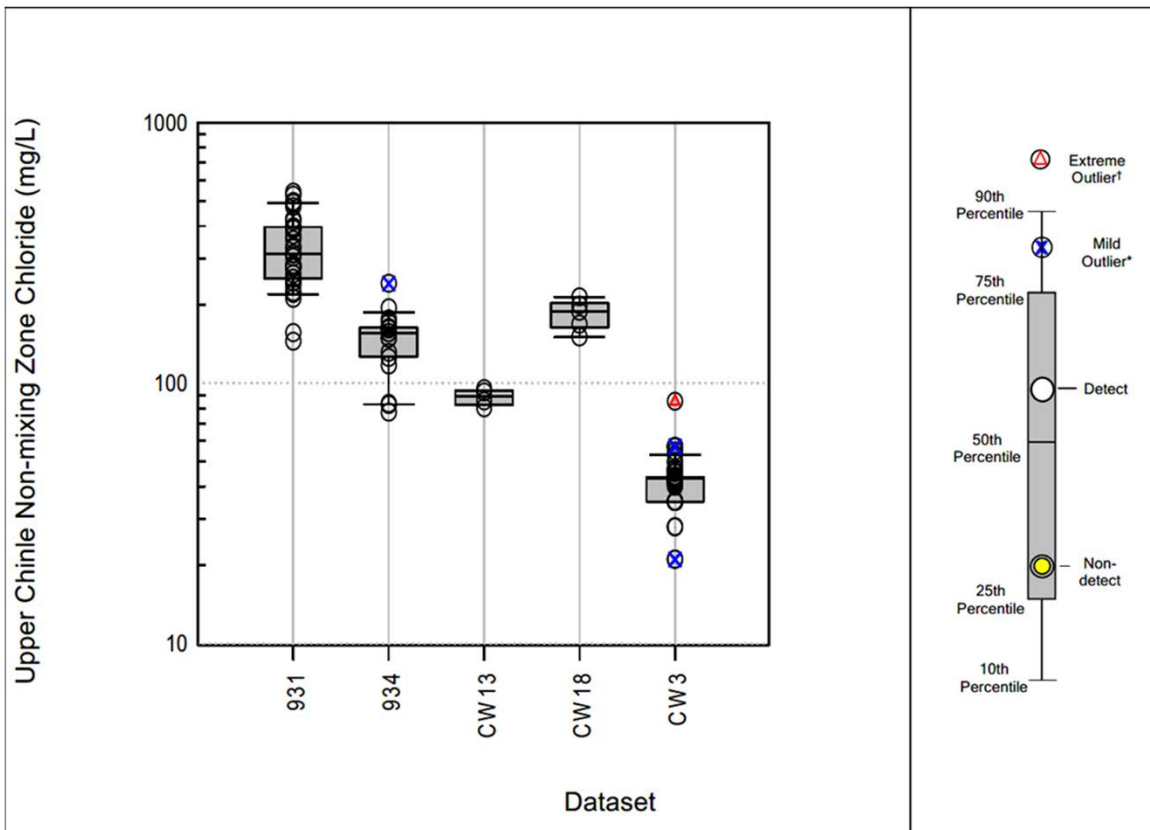
Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

5 HH5 7 < A9 BH'4''

Upper 7\]b`Y'Non-A]l]b[`NcbY





ARCADIS		Box and Whisker Plot Upper Chinle Non-mixing Zone Chloride Grants Reclamation Project										Figure 4.1		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
0931	mg/L	0	34	34	NA	NA	145	540	331	313	102	252	313	397
0934	mg/L	0	19	19	NA	NA	77.1	241	148	156	39.8	127	156	163
CW13	mg/L	0	4	4	NA	NA	80.2	94.9	88.2	88.8	6.7	82.8	88.8	93.6
CW18	mg/L	0	5	5	NA	NA	150	214	184	188	25.3	164	188	203
CW3	mg/L	0	65	65	NA	NA	21.0	85.0	42.3	43.0	9.1	35.0	43.0	43.5
pooled	mg/L	0	127	127	NA	NA	21.0	540	142	57.0	134	43.0	57.0	219

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

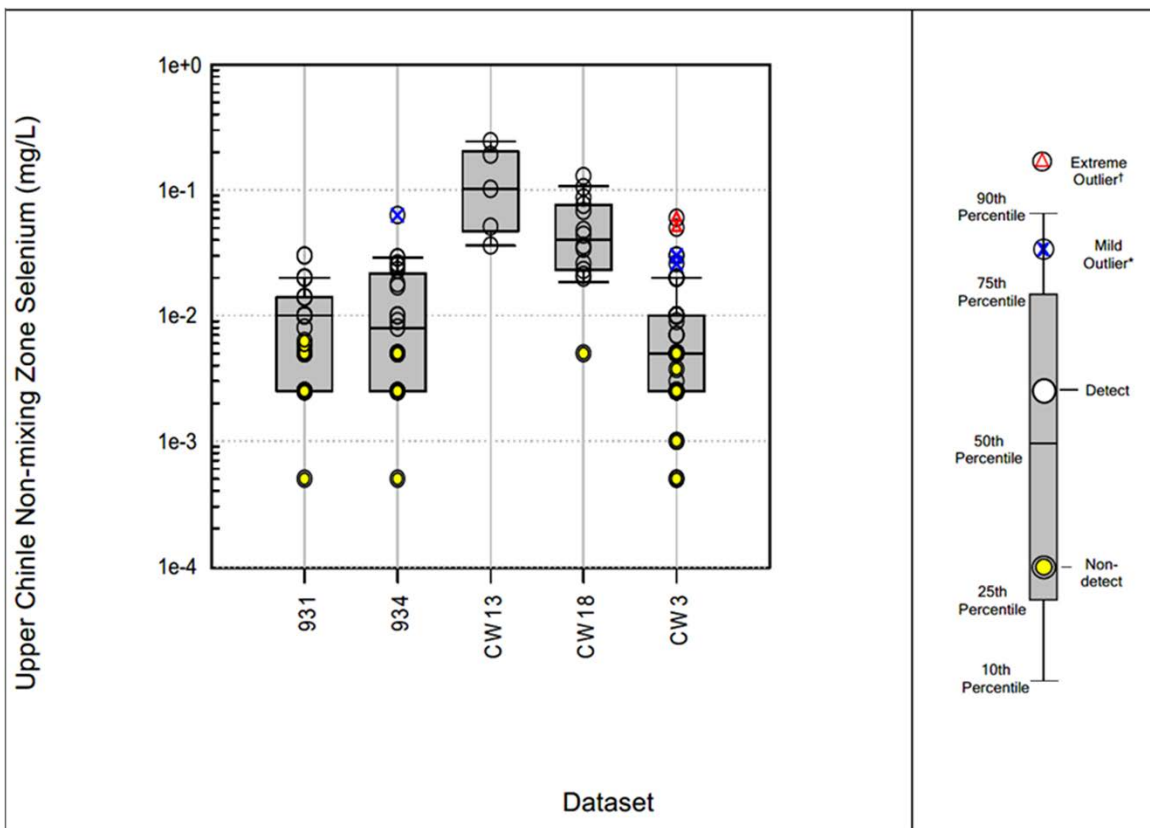
ND = nondetect

SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.



ARCADIS		Box and Whisker Plot Upper Chinle Non-mixing Zone Selenium Grants Reclamation Project										Figure 4.2		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
0931	mg/L	15	19	34	0.0005	0.00625	0.008	0.03	0.02	0.01	0.0068	0.0025	0.01	0.01
0934	mg/L	11	12	23	0.0005	0.005	0.008	0.06	0.02	0.02	0.02	0.0025	0.008	0.02
CW13	mg/L	0	5	5	NA	NA	0.04	0.24	0.12	0.10	0.09	0.05	0.10	0.20
CW18	mg/L	1	13	14	0.005	0.005	0.02	0.13	0.06	0.04	0.04	0.02	0.04	0.08
CW3	mg/L	47	42	89	0.0005	0.005	0.003	0.06	0.02	0.01	0.01	0.0025	0.005	0.01
pooled	mg/L	74	91	165	0.0005	0.00625	0.003	0.24	0.03	0.02	0.04	0.0025	0.009	0.02

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

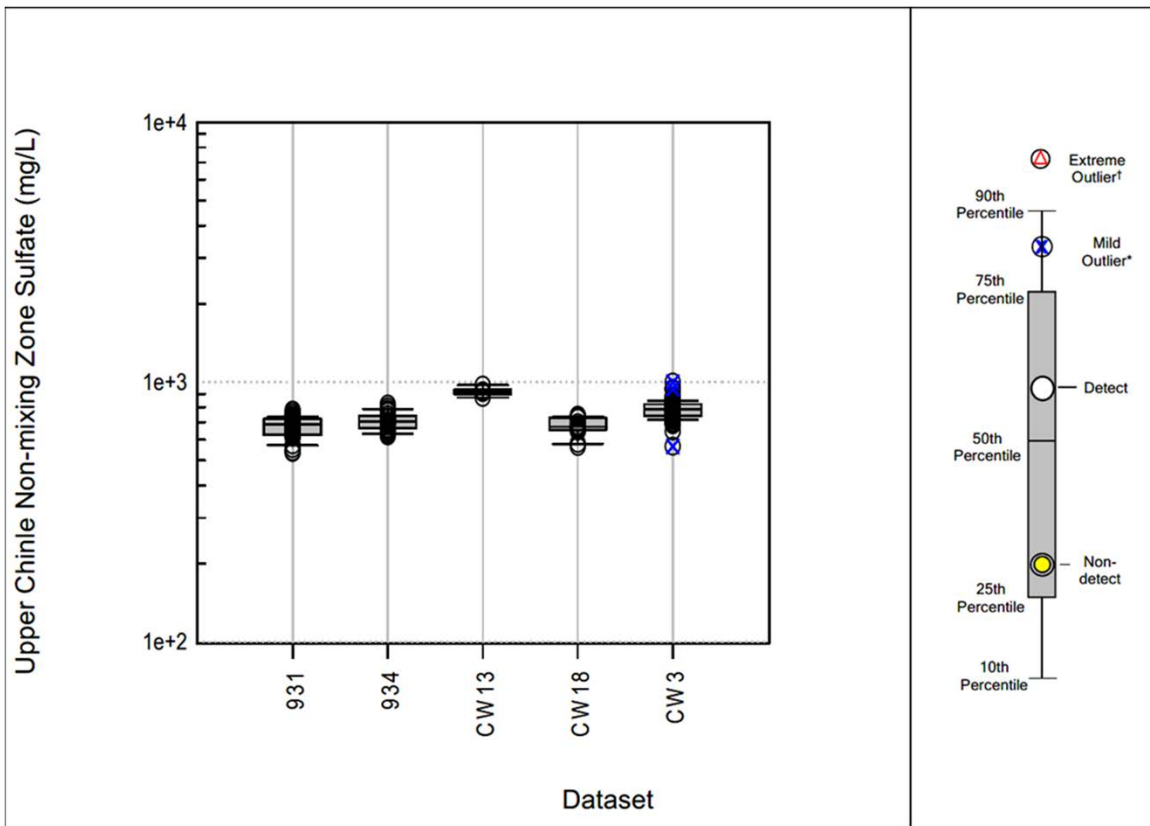
ND = nondetect


SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.





Box and Whisker Plot

Upper Chinle Non-mixing Zone Sulfate

Grants Reclamation Project

Figure 4.3

Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
0931	mg/L	0	34	34	NA	NA	535	779	673	690	63.5	626	690	722
0934	mg/L	0	23	23	NA	NA	620	821	712	706	56.0	666	706	744
CW13	mg/L	0	5	5	NA	NA	872	973	919	915	36.2	901	915	936
CW18	mg/L	0	14	14	NA	NA	565	744	677	674	56.0	655	674	728
CW3	mg/L	0	91	91	NA	NA	566	998	786	787	63.6	744	787	822
pooled	mg/L	0	167	167	NA	NA	535	998	747	744	84.4	699	744	795

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

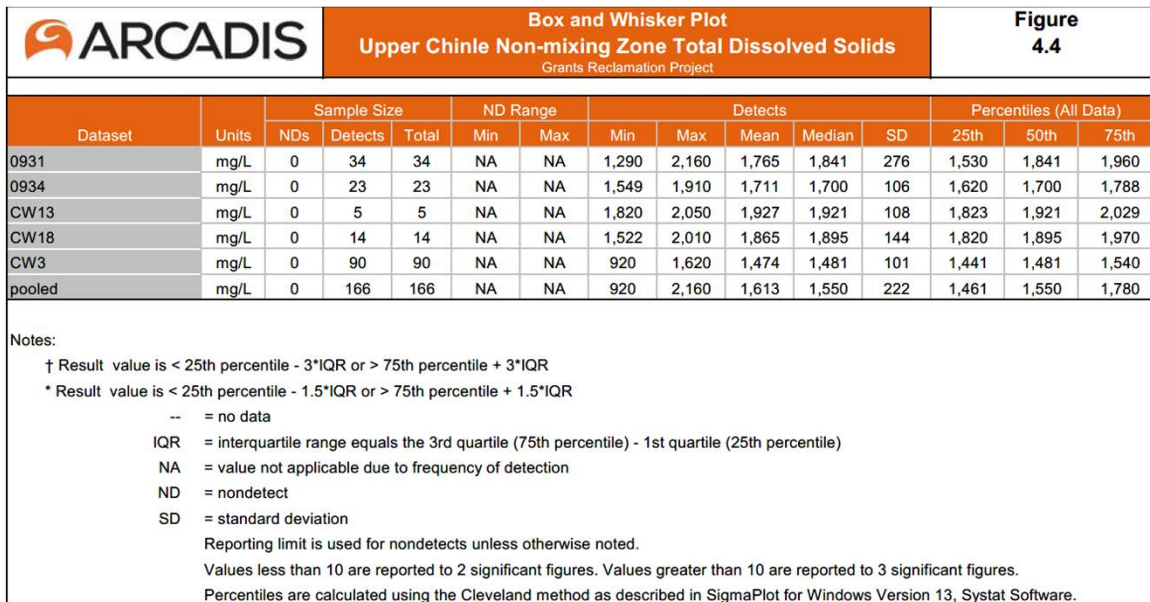
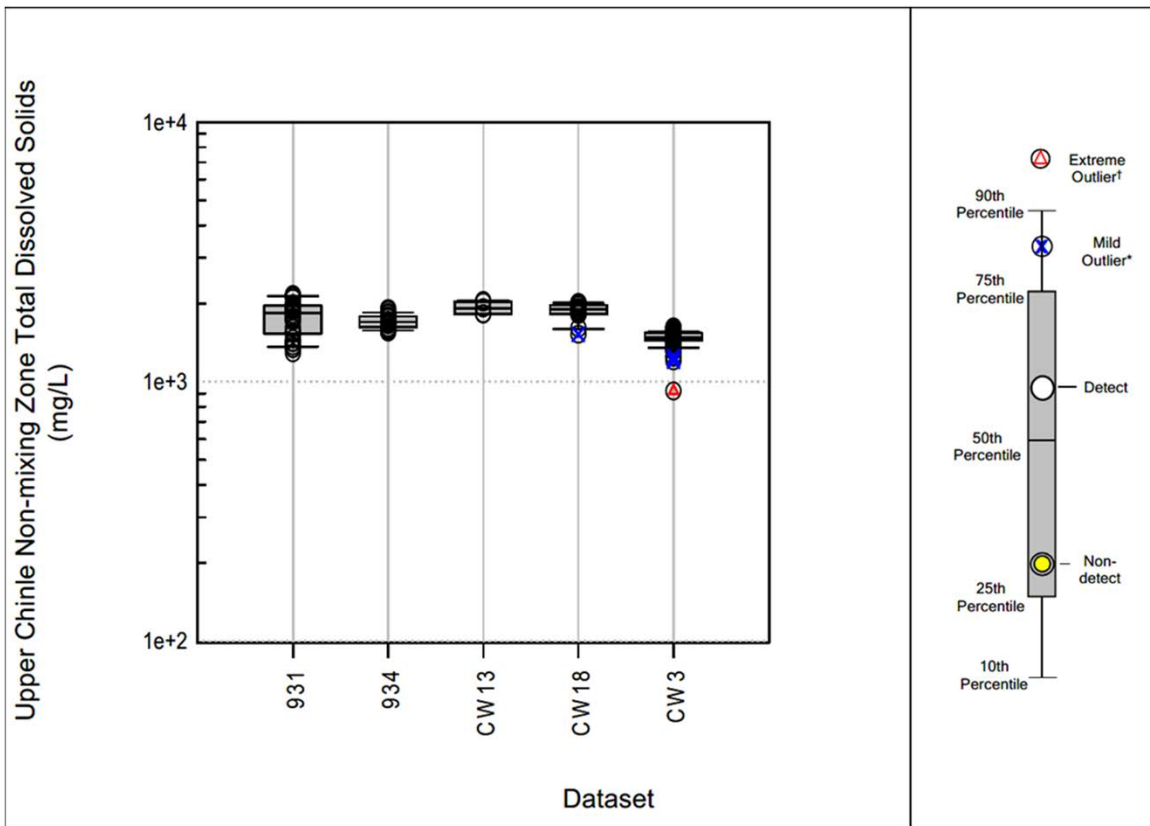
ND = nondetect

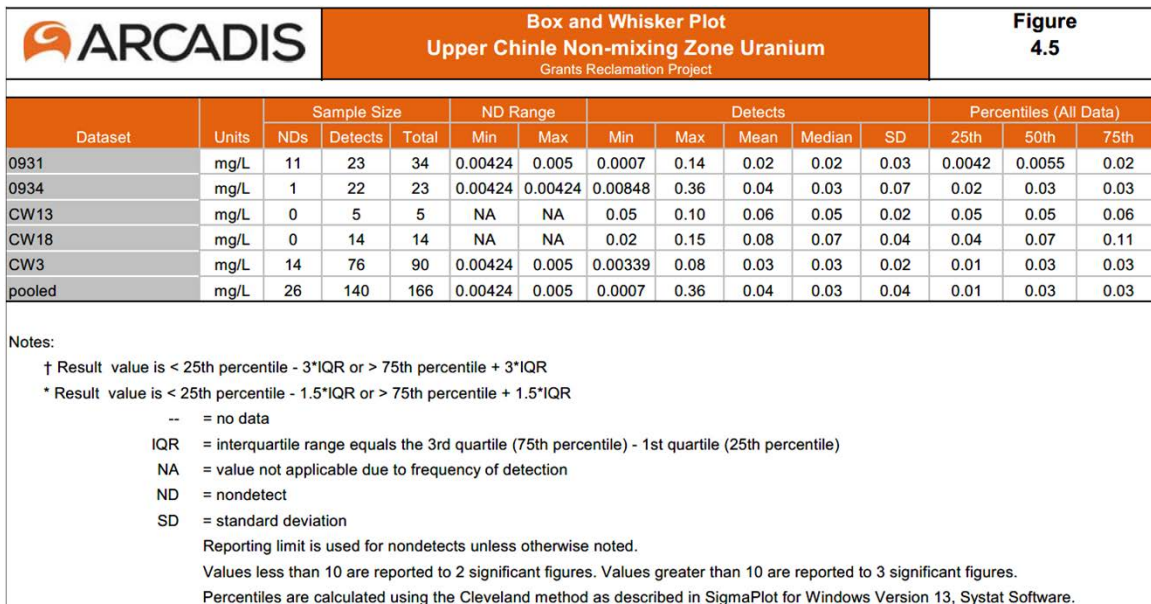
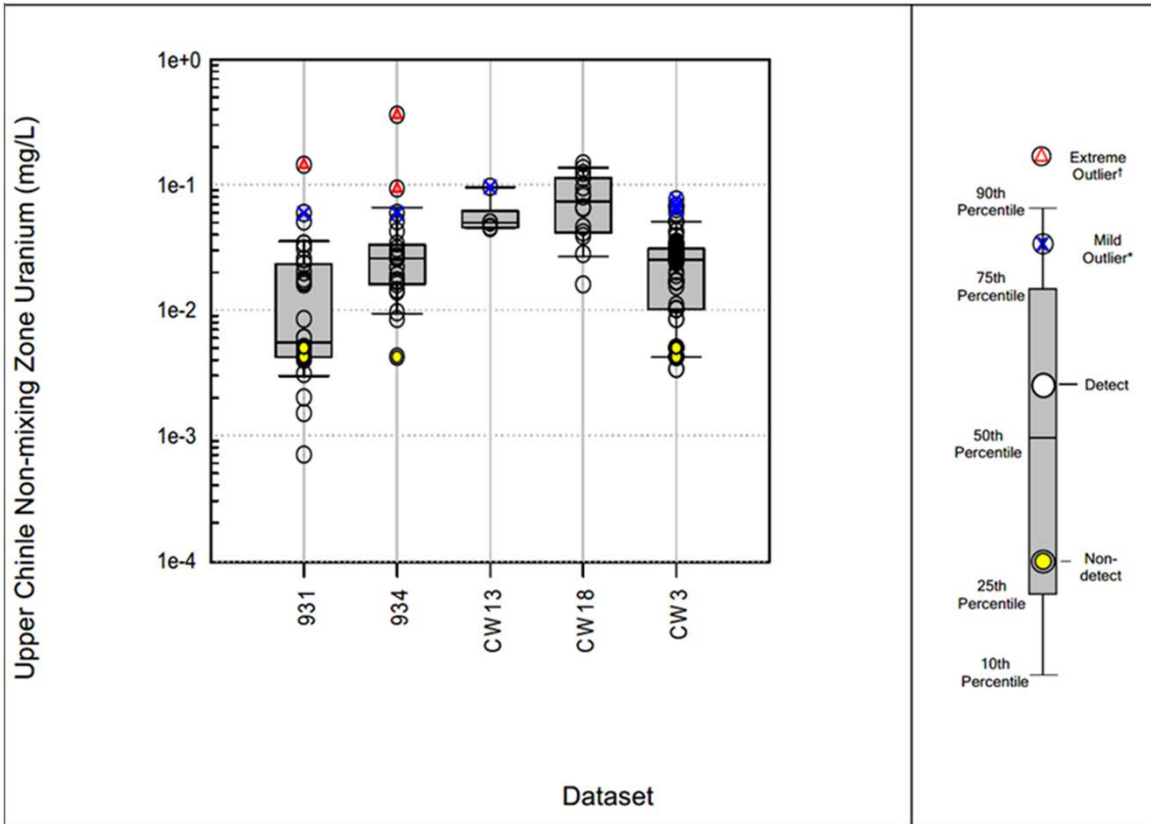
SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.

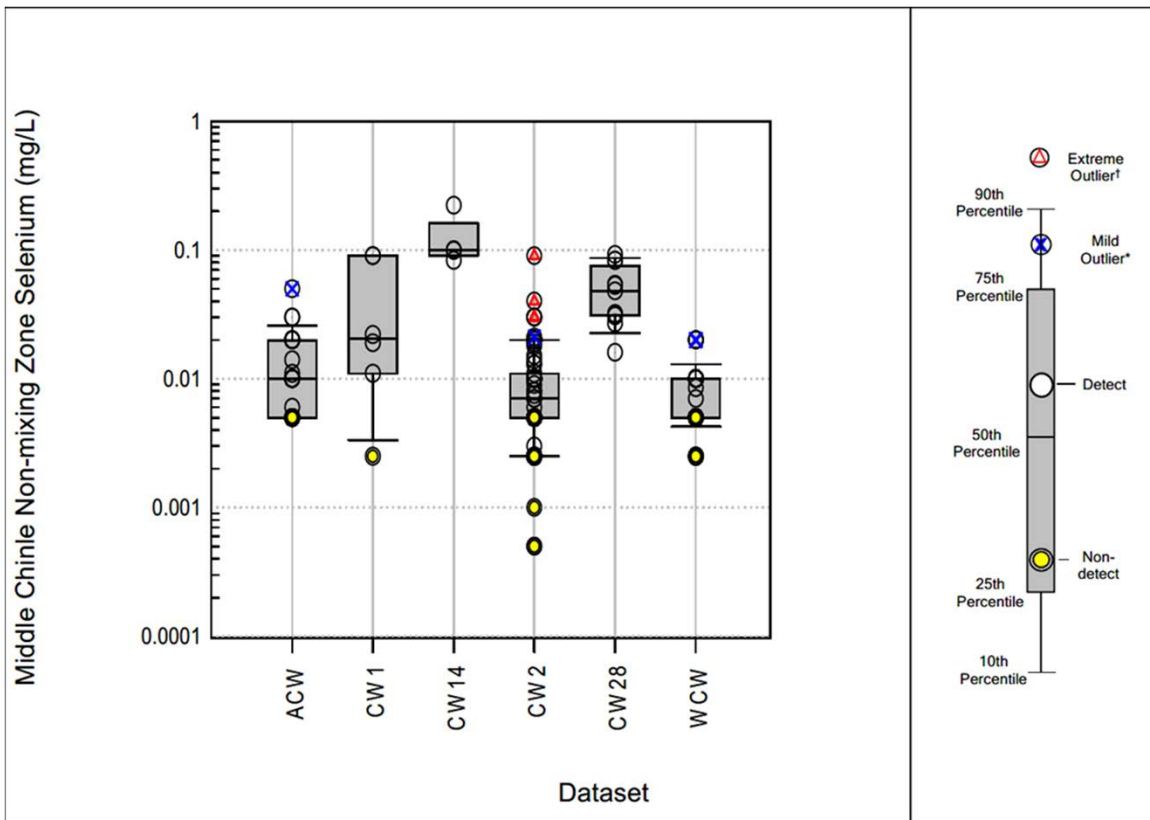




5 HH5 7 < A9 BH'5''

Middle`7\]b`Y`Bcb!A]l]b[`NcbY





ARCADIS		Box and Whisker Plot Middle Chinle Non-mixing Zone Selenium Grants Reclamation Project										Figure 5.1		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
ACW	mg/L	9	20	29	0.005	0.005	0.006	0.05	0.02	0.01	0.01	0.005	0.01	0.02
CW1	mg/L	1	5	6	0.0025	0.0025	0.01	0.09	0.05	0.02	0.04	0.01	0.02	0.09
CW14	mg/L	0	4	4	NA	NA	0.08	0.22	0.13	0.10	0.06	0.09	0.10	0.16
CW2	mg/L	37	53	90	0.0005	0.005	0.003	0.09	0.02	0.01	0.01	0.005	0.007	0.01
CW28	mg/L	0	11	11	NA	NA	0.02	0.09	0.05	0.05	0.03	0.03	0.05	0.08
WCW	mg/L	22	30	52	0.0025	0.005	0.007	0.02	0.01	0.01	0.0039	0.005	0.01	0.01
pooled	mg/L	69	123	192	0.0005	0.005	0.003	0.22	0.02	0.01	0.03	0.005	0.01	0.02

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

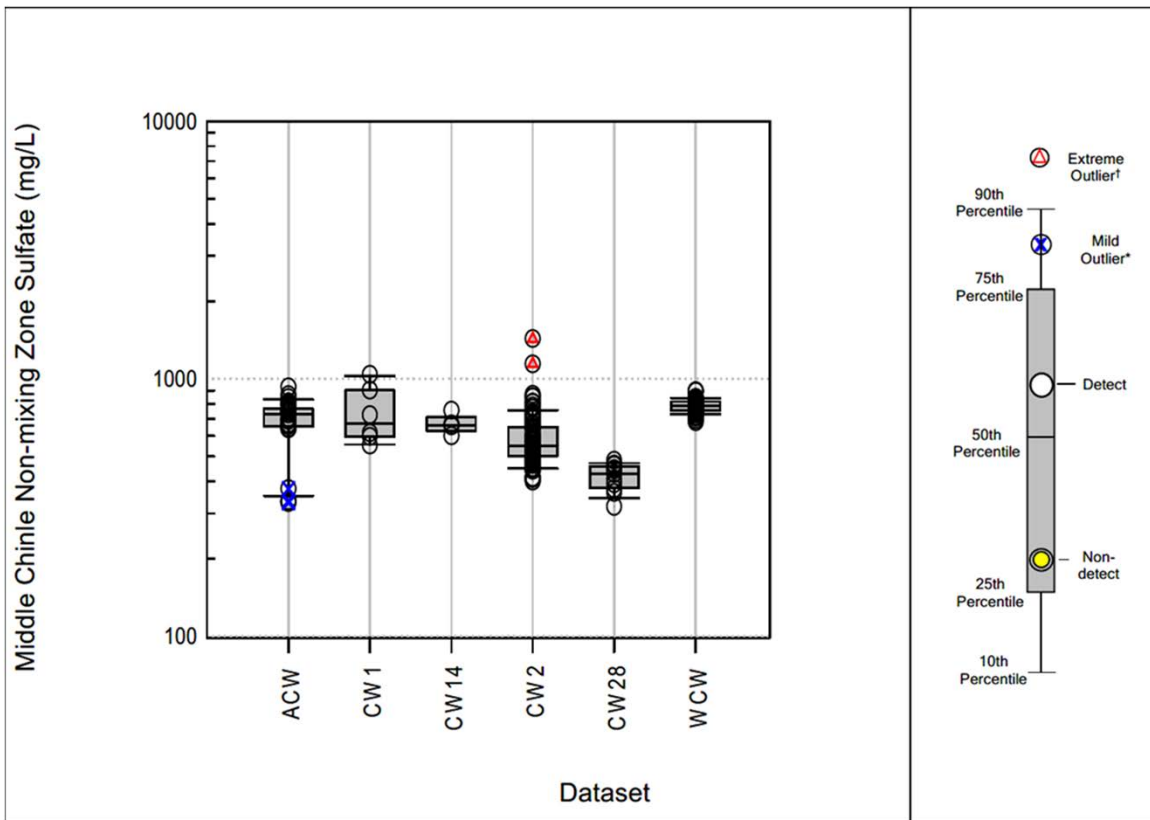
ND = nondetect


SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.





Box and Whisker Plot

Middle Chinle Non-mixing Zone Sulfate

Grants Reclamation Project

Figure 5.2

Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
ACW	mg/L	0	29	29	NA	NA	330	929	686	730	156	654	730	766
CW1	mg/L	0	6	6	NA	NA	552	1,039	739	670	194	597	670	903
CW14	mg/L	0	4	4	NA	NA	601	754	670	662	63.3	629	662	711
CW2	mg/L	0	90	90	NA	NA	400	1,430	592	550	153	502	550	651
CW28	mg/L	0	11	11	NA	NA	319	482	416	429	50.6	377	429	457
WCW	mg/L	0	52	52	NA	NA	680	896	785	787	47.8	753	787	818
pooled	mg/L	0	192	192	NA	NA	319	1,430	654	667	162	524	667	772

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

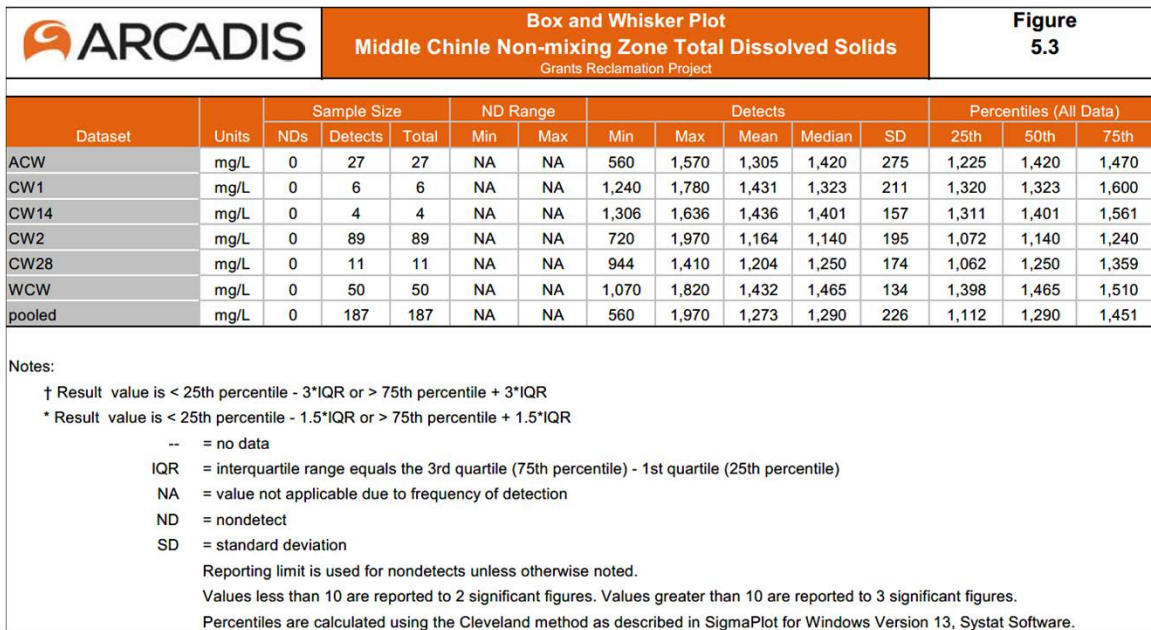
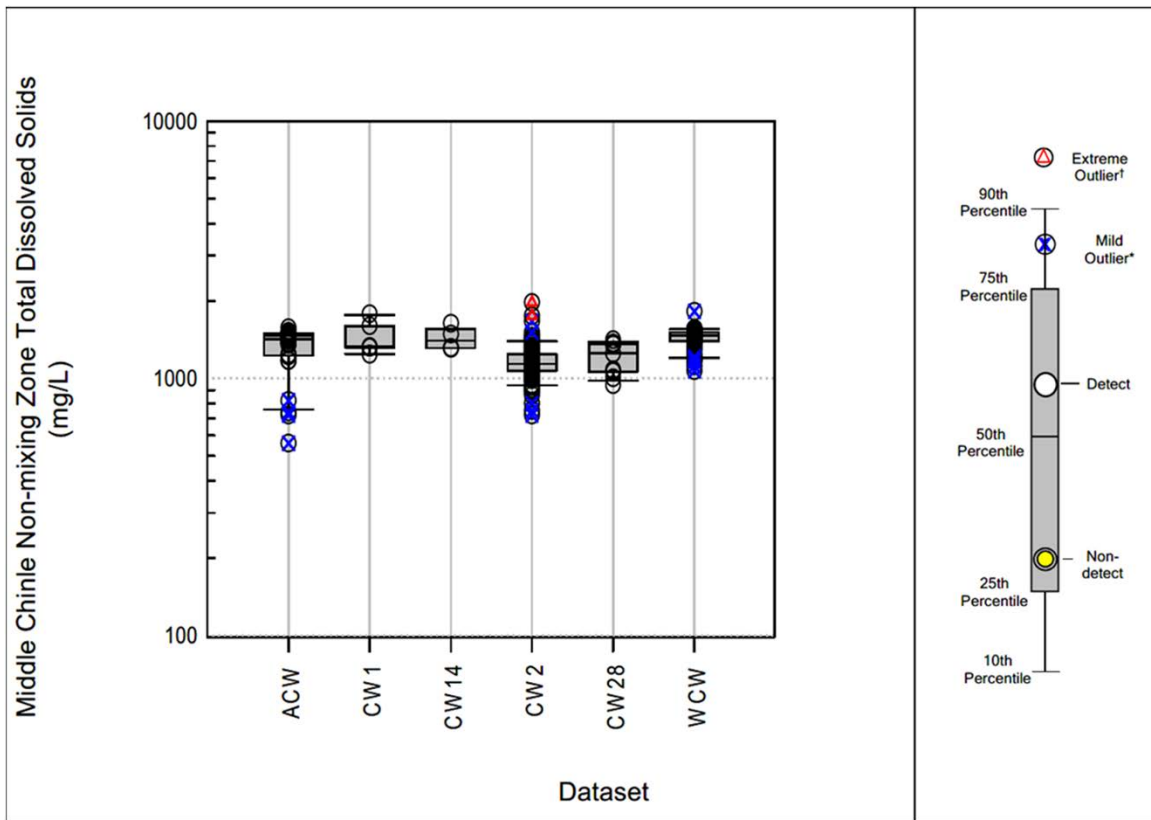
ND = nondetect

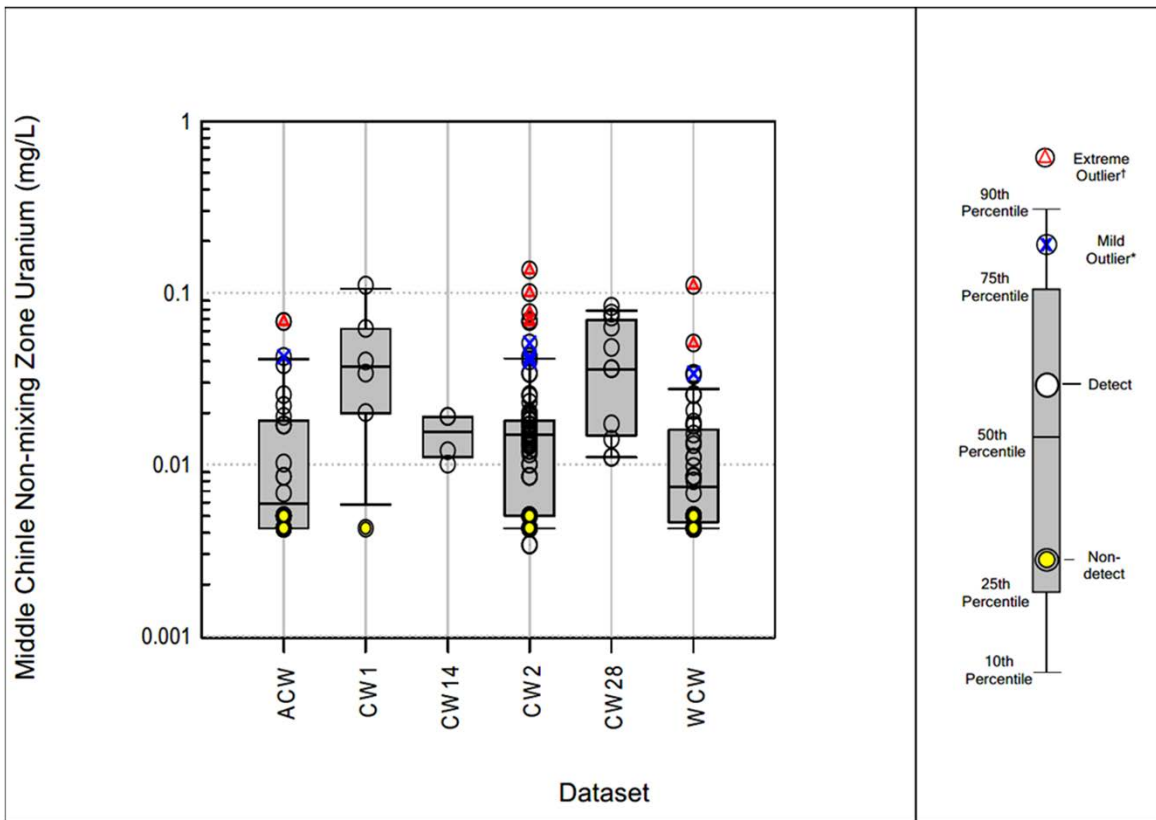
SD = standard deviation


Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.







Box and Whisker Plot

Middle Chinle Non-mixing Zone Uranium

Grants Reclamation Project

Figure 5.4

Dataset	Units	Sample Size			ND Range		Detects						Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th	
ACW	mg/L	14	14	28	0.00424	0.005	0.00678	0.07	0.03	0.02	0.02	0.0042	0.0059	0.02	
CW1	mg/L	1	5	6	0.00424	0.00424	0.02	0.11	0.05	0.04	0.04	0.02	0.04	0.06	
CW14	mg/L	0	4	4	NA	NA	0.01	0.02	0.02	0.02	0.0047	0.01	0.02	0.02	
CW2	mg/L	20	69	89	0.00424	0.005	0.00339	0.14	0.02	0.02	0.02	0.005	0.02	0.02	
CW28	mg/L	0	11	11	NA	NA	0.01	0.08	0.04	0.04	0.03	0.02	0.04	0.07	
WCW	mg/L	25	27	52	0.00424	0.005	0.00678	0.11	0.02	0.02	0.02	0.0046	0.0074	0.02	
pooled	mg/L	60	130	190	0.00424	0.005	0.00339	0.14	0.03	0.02	0.02	0.005	0.01	0.02	

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

ND = nondetect

SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

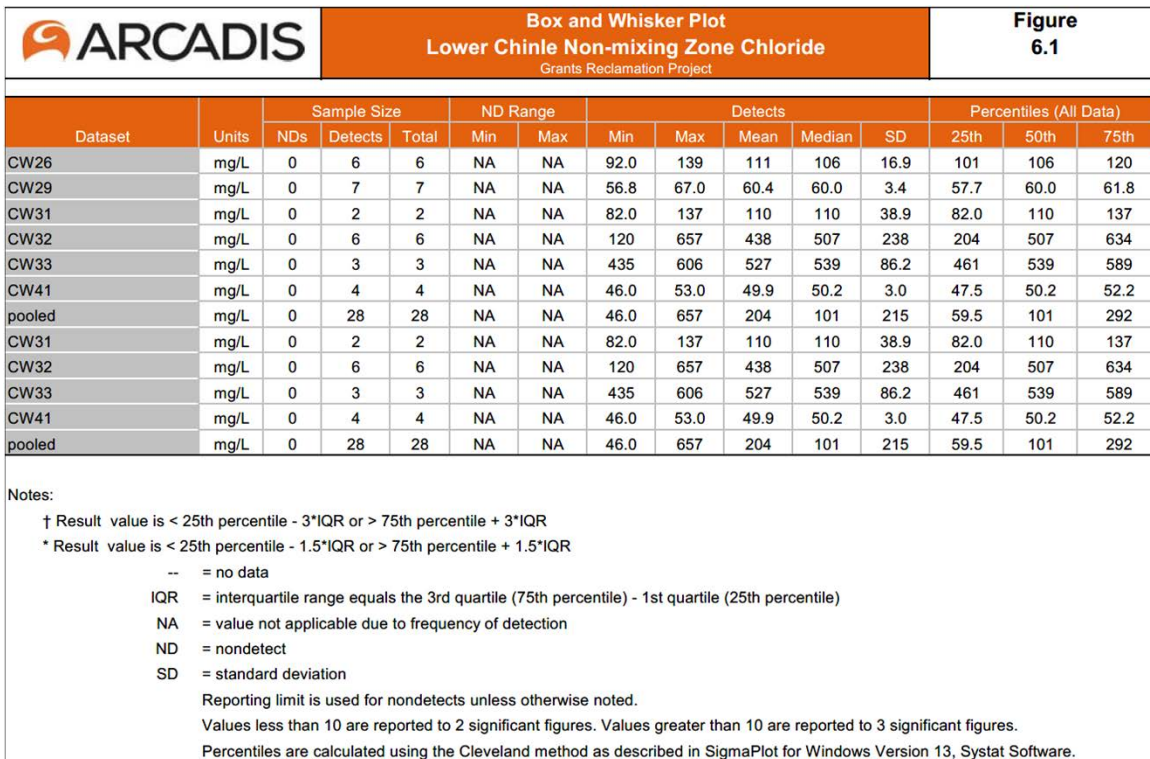
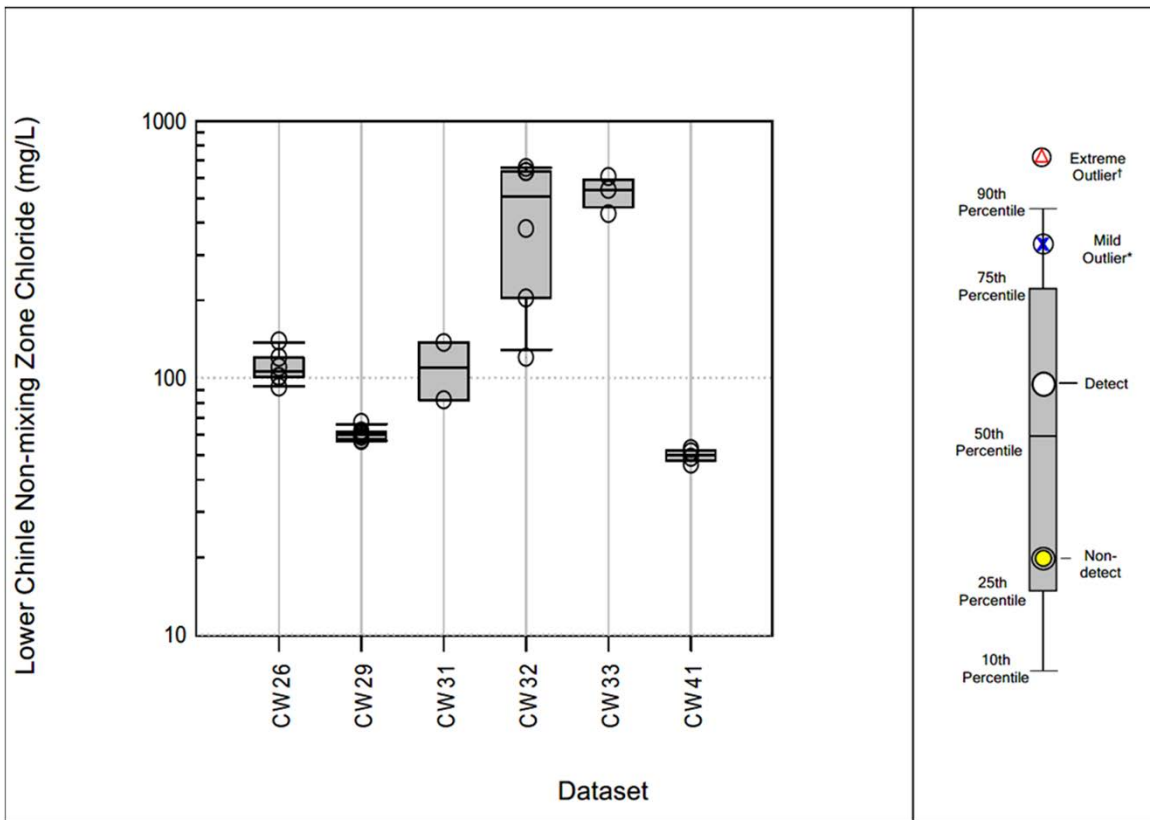
Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

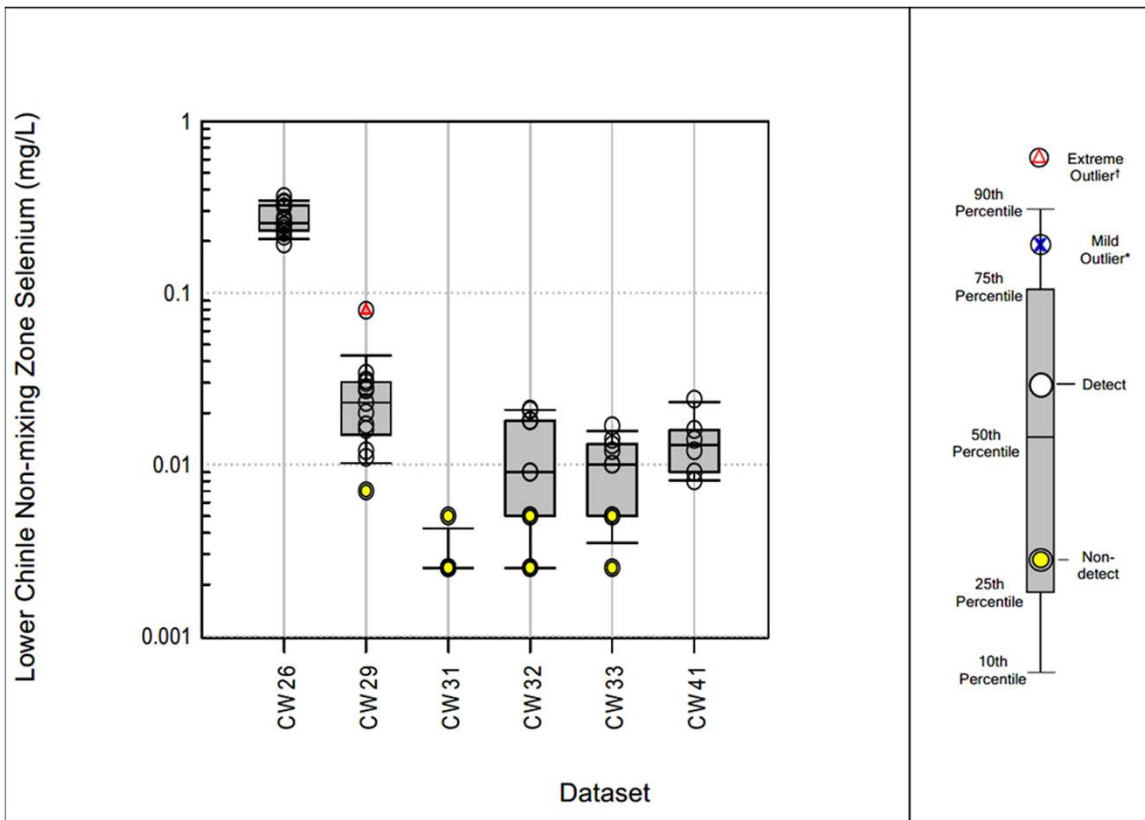
Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.

5 HH5 7 < A9 BH'6''''

Lower'7\]b`Y'Bcb!A]I]b[`NcbY







ARCADIS		Box and Whisker Plot Lower Chinle Non-mixing Zone Selenium Grants Reclamation Project										Figure 6.2		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
CW26	mg/L	0	12	12	NA	NA	0.19	0.36	0.27	0.25	0.06	0.23	0.25	0.32
CW29	mg/L	1	12	13	0.007	0.007	0.01	0.08	0.03	0.03	0.02	0.02	0.02	0.03
CW31	mg/L	8	0	8	0.0025	0.005	ND	ND	ND	ND	ND	0.0025	0.0025	0.0025
CW32	mg/L	4	7	11	0.0025	0.005	0.009	0.02	0.02	0.02	0.0051	0.005	0.009	0.02
CW33	mg/L	3	6	9	0.0025	0.005	0.01	0.02	0.01	0.01	0.0026	0.005	0.01	0.01
CW41	mg/L	0	6	6	NA	NA	0.008	0.02	0.01	0.01	0.0058	0.009	0.01	0.02
pooled	mg/L	16	43	59	0.0025	0.007	0.008	0.36	0.09	0.02	0.12	0.0055	0.02	0.03
CW31	mg/L	8	0	8	0.0025	0.005	ND	ND	ND	ND	ND	0.0025	0.0025	0.0025
CW32	mg/L	4	7	11	0.0025	0.005	0.009	0.02	0.02	0.02	0.0051	0.005	0.009	0.02
CW33	mg/L	3	6	9	0.0025	0.005	0.01	0.02	0.01	0.01	0.0026	0.005	0.01	0.01
CW41	mg/L	0	6	6	NA	NA	0.008	0.02	0.01	0.01	0.0058	0.009	0.01	0.02
pooled	mg/L	16	43	59	0.0025	0.007	0.008	0.36	0.09	0.02	0.12	0.0055	0.02	0.03

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

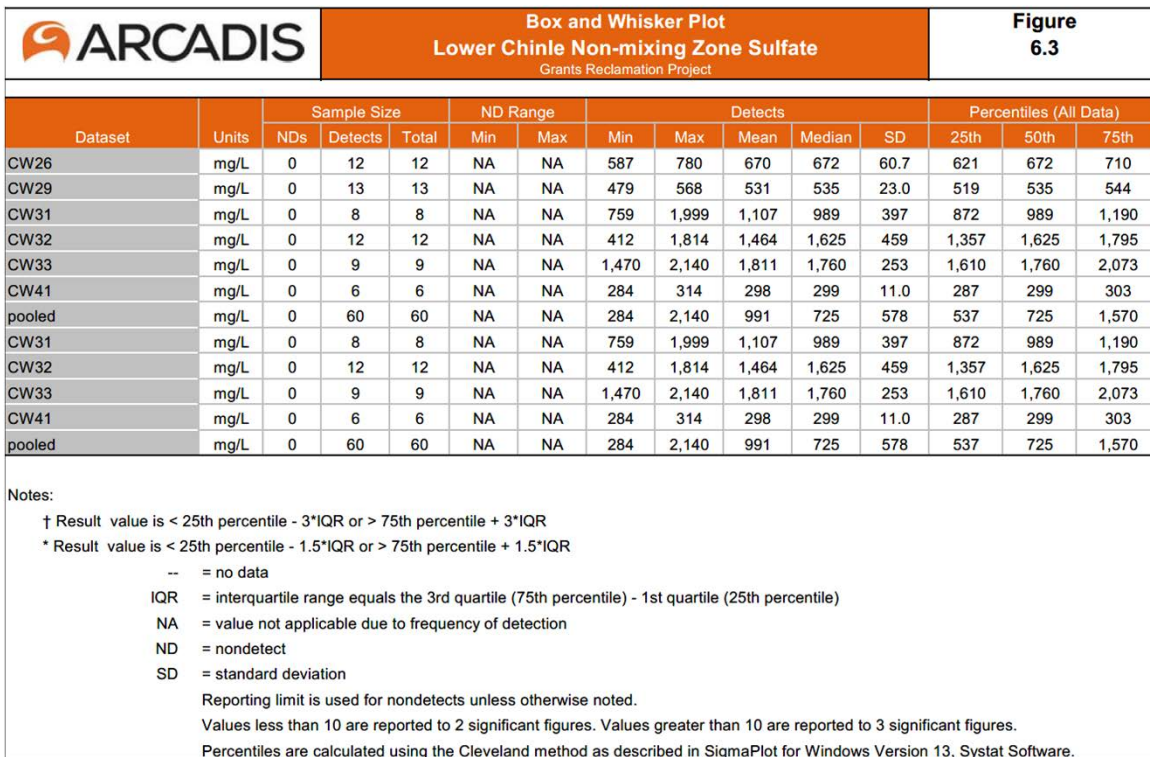
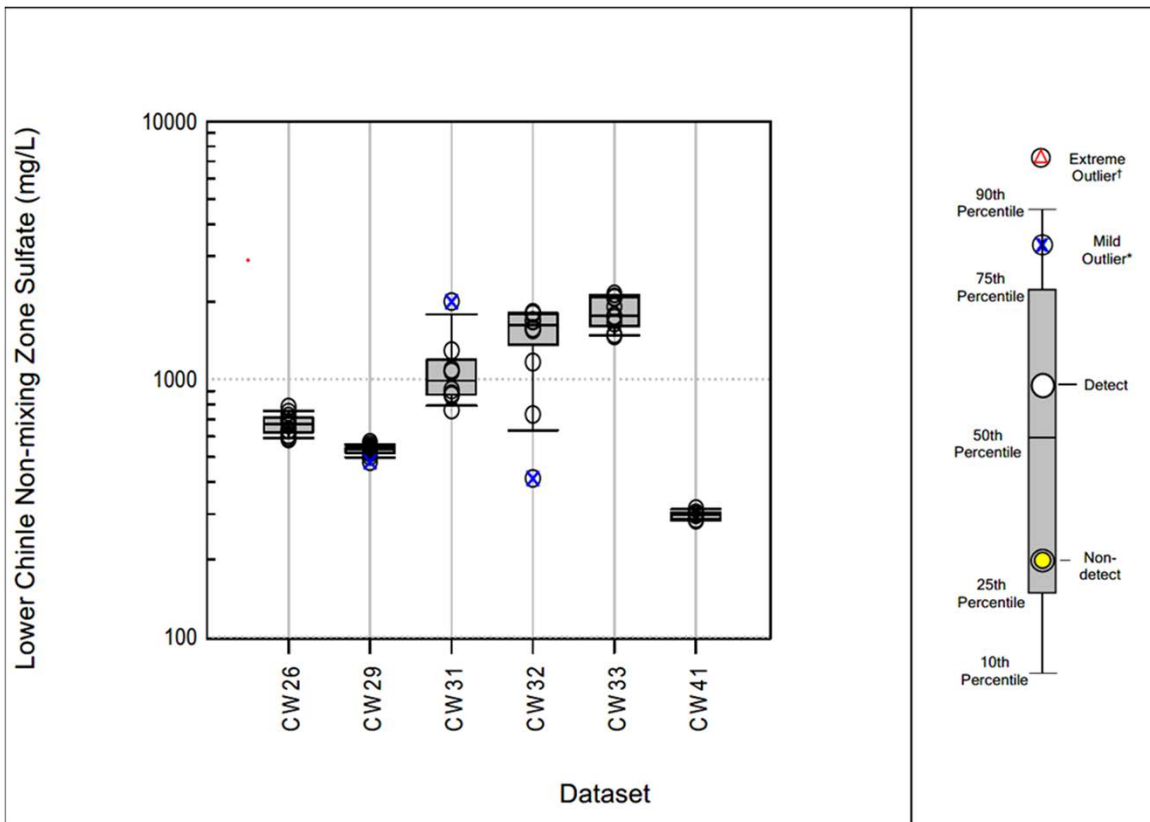
ND = nondetect

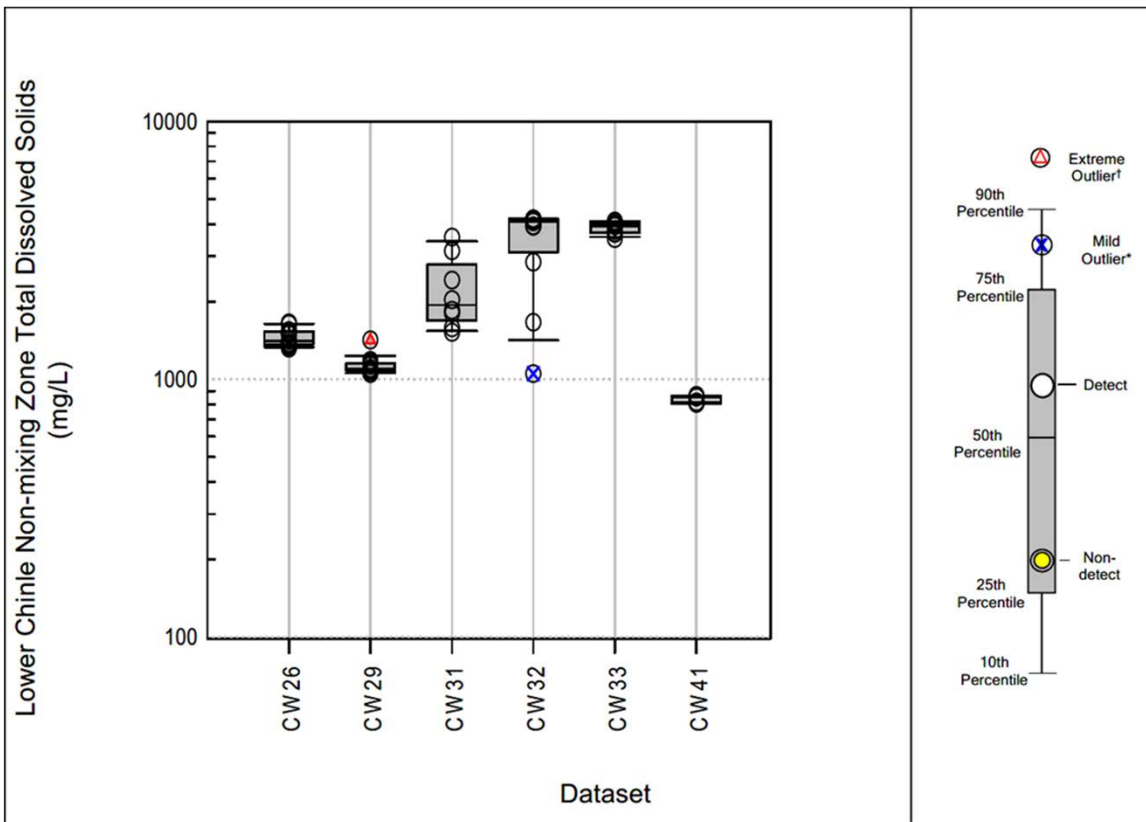
SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.





ARCADIS		Box and Whisker Plot Lower Chinle Non-mixing Zone Total Dissolved Solids Grants Reclamation Project										Figure 6.4		
Dataset	Units	Sample Size			ND Range		Detects					Percentiles (All Data)		
		NDs	Detects	Total	Min	Max	Min	Max	Mean	Median	SD	25th	50th	75th
CW26	mg/L	0	11	11	NA	NA	1,317	1,650	1,456	1,410	117	1,362	1,410	1,533
CW29	mg/L	0	13	13	NA	NA	1,050	1,417	1,133	1,100	94.4	1,080	1,100	1,151
CW31	mg/L	0	8	8	NA	NA	1,520	3,551	2,236	1,940	747	1,690	1,940	2,780
CW32	mg/L	0	11	11	NA	NA	1,050	4,180	3,473	4,070	1,122	3,109	4,070	4,148
CW33	mg/L	0	9	9	NA	NA	3,500	4,100	3,853	3,920	204	3,687	3,920	4,007
CW41	mg/L	0	6	6	NA	NA	805	864	826	814	24.9	810	814	851
pooled	mg/L	0	58	58	NA	NA	805	4,180	2,181	1,530	1,269	1,130	1,530	3,692
CW31	mg/L	0	8	8	NA	NA	1,520	3,551	2,236	1,940	747	1,690	1,940	2,780
CW32	mg/L	0	11	11	NA	NA	1,050	4,180	3,473	4,070	1,122	3,109	4,070	4,148
CW33	mg/L	0	9	9	NA	NA	3,500	4,100	3,853	3,920	204	3,687	3,920	4,007
CW41	mg/L	0	6	6	NA	NA	805	864	826	814	24.9	810	814	851
pooled	mg/L	0	58	58	NA	NA	805	4,180	2,181	1,530	1,269	1,130	1,530	3,692

Notes:

† Result value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR

* Result value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

-- = no data

IQR = interquartile range equals the 3rd quartile (75th percentile) - 1st quartile (25th percentile)

NA = value not applicable due to frequency of detection

ND = nondetect

SD = standard deviation

Reporting limit is used for nondetects unless otherwise noted.

Values less than 10 are reported to 2 significant figures. Values greater than 10 are reported to 3 significant figures.

Percentiles are calculated using the Cleveland method as described in SigmaPlot for Windows Version 13, Systat Software.

5 HH5 7 < A9 BH'7''''

Statistical Calculations



Background Statistics for Data Sets with Non-Detects**User Selected Options**

Date/Time of Computation ProUCL 5.18/19/2016 8:54:37 AM
 From File data for proucl_a.xls
 Full Precision OFF
 Confidence Coefficient 95%
 Coverage 95%
 Different or Future K Observations 1
 Number of Bootstrap Operations 2000

Result (alluvial nitrate)**General Statistics**

Total Number of Observations	87	Number of Distinct Observations	75
Minimum	0.44	First Quartile	4.99
Second Largest	15.5	Median	9.25
Maximum	16.4	Third Quartile	11.35
Mean	8.403	SD	3.965
Coefficient of Variation	0.472	Skewness	-0.364
Mean of logged Data	1.933	SD of logged Data	0.758

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.946	d2max (for USL)	3.161
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Normal GOF Test

Shapiro Wilk Test Statistic	0.942
5% Shapiro Wilk P Value	0.00118
Lilliefors Test Statistic	0.103
5% Lilliefors Critical Value	0.0951

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level**Background Statistics Assuming Normal Distribution**

95% UTL with 95% Coverage	16.12	90% Percentile (z)	13.48
95% UPL (t)	15.03	95% Percentile (z)	14.93
95% USL	20.94	99% Percentile (z)	17.63

Gamma GOF Test

A-D Test Statistic	3.921
5% A-D Critical Value	0.761
K-S Test Statistic	0.182
5% K-S Critical Value	0.0967

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level**Gamma Statistics**

k hat (MLE)	2.713	k star (bias corrected MLE)	2.627
Theta hat (MLE)	3.097	Theta star (bias corrected MLE)	3.198
nu hat (MLE)	472.1	nu star (bias corrected)	457.1
MLE Mean (bias corrected)	8.403	MLE Sd (bias corrected)	5.184

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	18.44	90% Percentile	15.35
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Attachment 7: Statistical Calculations

95% Hawkins Wixley (HW) Approx. Gamma UPL	19.4	95% Percentile	18.33
95% WH Approx. Gamma UTL with 95% Coverage	20.88	99% Percentile	24.84
95% HW Approx. Gamma UTL with 95% Coverage	22.28		
95% WH USL	34.35	95% HW USL	39.09

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.804	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	1.110E-16	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.209	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.0951	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	30.2	90% Percentile (z)	18.25
95% UPL (t)	24.54	95% Percentile (z)	24.04
95% USL	75.88	99% Percentile (z)	40.29

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	85	95% UTL with 95% Coverage	15
Approx, f used to compute achieved CC	1.491	Approximate Actual Confidence Coefficient achieved by UTL	0.816
		Approximate Sample Size needed to achieve specified CC	124
95% Percentile Bootstrap UTL with 95% Coverage	15	95% BCA Bootstrap UTL with 95% Coverage	15
95% UPL	14.26	90% Percentile	12.8
90% Chebyshev UPL	20.37	95% Percentile	13.57
95% Chebyshev UPL	25.79	99% Percentile	15.63
95% USL	16.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (alluvial selenium)

General Statistics

Total Number of Observations	124	Number of Distinct Observations	101
Minimum	0.01	First Quartile	0.088
Second Largest	0.505	Median	0.194
Maximum	0.579	Third Quartile	0.237
Mean	0.18	SD	0.106
Coefficient of Variation	0.592	Skewness	0.74
Mean of logged Data	-1.964	SD of logged Data	0.813

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.892	d2max (for USL)	3.281
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Normal GOF Test

Shapiro Wilk Test Statistic 0.927
 5% Shapiro Wilk P Value 2.3175E-7
 Lilliefors Test Statistic 0.0974
 5% Lilliefors Critical Value 0.0799

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level**Background Statistics Assuming Normal Distribution**

95% UTL with 95% Coverage	0.381	90% Percentile (z)	0.316
95% UPL (t)	0.357	95% Percentile (z)	0.355
95% USL	0.529	99% Percentile (z)	0.427

Gamma GOF Test

A-D Test Statistic 3.779
 5% A-D Critical Value 0.764
 K-S Test Statistic 0.154
 5% K-S Critical Value 0.0843

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level**Gamma Statistics**

k hat (MLE)	2.175	k star (bias corrected MLE)	2.127
Theta hat (MLE)	0.0826	Theta star (bias corrected MLE)	0.0845
nu hat (MLE)	539.3	nu star (bias corrected)	527.6
MLE Mean (bias corrected)	0.18	MLE Sd (bias corrected)	0.123

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.42	90% Percentile	0.345
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.439	95% Percentile	0.418
95% WH Approx. Gamma UTL with 95% Coverage	0.47	99% Percentile	0.581
95% HW Approx. Gamma UTL with 95% Coverage	0.498		
95% WH USL	0.869	95% HW USL	0.995

Lognormal GOF Test

Shapiro Wilk Test Statistic 0.879
 5% Shapiro Wilk P Value 2.887E-15
 Lilliefors Test Statistic 0.194
 5% Lilliefors Critical Value 0.0799

Shapiro Wilk Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level**Background Statistics assuming Lognormal Distribution**

95% UTL with 95% Coverage	0.653	90% Percentile (z)	0.398
95% UPL (t)	0.543	95% Percentile (z)	0.534
95% USL	2.021	99% Percentile (z)	0.93

Nonparametric Distribution Free Background Statistics**Data do not follow a Discernible Distribution (0.05)****Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	121	95% UTL with 95% Coverage	0.429
Approx, f used to compute achieved CC	1.592	Approximate Actual Confidence Coefficient achieved by UTL	0.872
		Approximate Sample Size needed to achieve specified CC	153
95% Percentile Bootstrap UTL with 95% Coverage	0.429	95% BCA Bootstrap UTL with 95% Coverage	0.425

Attachment 7: Statistical Calculations

95% UPL	0.378	90% Percentile	0.286
90% Chebyshev UPL	0.5	95% Percentile	0.322
95% Chebyshev UPL	0.646	99% Percentile	0.504
95% USL	0.579		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (alluvial sulfate)

General Statistics

Total Number of Observations	124	Number of Distinct Observations	93
Minimum	335	First Quartile	933.3
Second Largest	1710	Median	1100
Maximum	1790	Third Quartile	1168
Mean	1075	SD	255.5
Coefficient of Variation	0.238	Skewness	-0.231
Mean of logged Data	6.945	SD of logged Data	0.286

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.892	d2max (for USL)	3.281
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Normal GOF Test

Shapiro Wilk Test Statistic	0.938
5% Shapiro Wilk P Value	1.2464E-5
Lilliefors Test Statistic	0.115
5% Lilliefors Critical Value	0.0799

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	1558	90% Percentile (z)	1402
95% UPL (t)	1500	95% Percentile (z)	1495
95% USL	1913	99% Percentile (z)	1669

Gamma GOF Test

A-D Test Statistic	4.142
5% A-D Critical Value	0.751
K-S Test Statistic	0.127
5% K-S Critical Value	0.0831

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	14.52	k star (bias corrected MLE)	14.17
Theta hat (MLE)	74.02	Theta star (bias corrected MLE)	75.83
nu hat (MLE)	3601	nu star (bias corrected)	3515
MLE Mean (bias corrected)	1075	MLE Sd (bias corrected)	285.5

Background Statistics Assuming Gamma Distribution

Attachment 7: Statistical Calculations

95% Wilson Hilferty (WH) Approx. Gamma UPL	1585	90% Percentile	1453
95% Hawkins Wixley (HW) Approx. Gamma UPL	1603	95% Percentile	1583
95% WH Approx. Gamma UTL with 95% Coverage	1670	99% Percentile	1848
95% HW Approx. Gamma UTL with 95% Coverage	1693		
95% WH USL	2253	95% HW USL	2329

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.825	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.149	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.0799	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1784	90% Percentile (z)	1498
95% UPL (t)	1671	95% Percentile (z)	1662
95% USL	2656	99% Percentile (z)	2021

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	121	95% UTL with 95% Coverage	1683
Approx, f used to compute achieved CC	1.592	Approximate Actual Confidence Coefficient achieved by UTL	0.872
		Approximate Sample Size needed to achieve specified CC	153
95% Percentile Bootstrap UTL with 95% Coverage	1683	95% BCA Bootstrap UTL with 95% Coverage	1656
95% UPL	1530	90% Percentile	1347
90% Chebyshev UPL	1844	95% Percentile	1500
95% Chebyshev UPL	2193	99% Percentile	1704
95% USL	1790		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (alluvial total dissolved solids)

General Statistics

Total Number of Observations	124	Number of Distinct Observations	89
Minimum	954	First Quartile	1798
Second Largest	3050	Median	2050
Maximum	3054	Third Quartile	2115
Mean	1995	SD	380.5
Coefficient of Variation	0.191	Skewness	0.219
Mean of logged Data	7.579	SD of logged Data	0.202

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.892	d2max (for USL)	3.281
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Normal GOF Test

Shapiro Wilk Test Statistic 0.92
 5% Shapiro Wilk P Value 2.6145E-8
 Lilliefors Test Statistic 0.148
 5% Lilliefors Critical Value 0.0799

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	2715	90% Percentile (z)	2482
95% UPL (t)	2628	95% Percentile (z)	2621
95% USL	3243	99% Percentile (z)	2880

Gamma GOF Test

A-D Test Statistic 3.849
 5% A-D Critical Value 0.75
 K-S Test Statistic 0.138
 5% K-S Critical Value 0.0831

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	26.25	k star (bias corrected MLE)	25.62
Theta hat (MLE)	75.99	Theta star (bias corrected MLE)	77.86
nu hat (MLE)	6510	nu star (bias corrected)	6354
MLE Mean (bias corrected)	1995	MLE Sd (bias corrected)	394.1

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2687	90% Percentile	2513
95% Hawkins Wixley (HW) Approx. Gamma UPL	2698	95% Percentile	2684
95% WH Approx. Gamma UTL with 95% Coverage	2797	99% Percentile	3024
95% HW Approx. Gamma UTL with 95% Coverage	2812		
95% WH USL	3534	95% HW USL	3588

Lognormal GOF Test

Shapiro Wilk Test Statistic 0.901
 5% Shapiro Wilk P Value 1.704E-11
 Lilliefors Test Statistic 0.137
 5% Lilliefors Critical Value 0.0799

Shapiro Wilk Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	2866	90% Percentile (z)	2534
95% UPL (t)	2737	95% Percentile (z)	2727
95% USL	3793	99% Percentile (z)	3129

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	121	95% UTL with 95% Coverage	2950
Approx, f used to compute achieved CC	1.592	Approximate Actual Confidence Coefficient achieved by UTL	0.872
		Approximate Sample Size needed to achieve specified CC	153

Attachment 7: Statistical Calculations

95% Percentile Bootstrap UTL with 95% Coverage	2950	95% BCA Bootstrap UTL with 95% Coverage	2947
95% UPL	2838	90% Percentile	2298
90% Chebyshev UPL	3141	95% Percentile	2736
95% Chebyshev UPL	3660	99% Percentile	3041
95% USL	3054		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (alluvial uranium)

General Statistics

Total Number of Observations	124	Number of Distinct Observations	98
Minimum	0.0035	First Quartile	0.0279
Second Largest	0.178	Median	0.035
Maximum	0.188	Third Quartile	0.0498
Mean	0.0466	SD	0.0385
Coefficient of Variation	0.826	Skewness	2.563
Mean of logged Data	-3.273	SD of logged Data	0.605

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.892	d2max (for USL)	3.281
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Normal GOF Test

Shapiro Wilk Test Statistic	0.623
5% Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.278
5% Lilliefors Critical Value	0.0799

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.12	90% Percentile (z)	0.096
95% UPL (t)	0.111	95% Percentile (z)	0.11
95% USL	0.173	99% Percentile (z)	0.136

Gamma GOF Test

A-D Test Statistic	7.377
5% A-D Critical Value	0.762
K-S Test Statistic	0.179
5% K-S Critical Value	0.0841

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.559	k star (bias corrected MLE)	2.503
Theta hat (MLE)	0.0182	Theta star (bias corrected MLE)	0.0186
nu hat (MLE)	634.7	nu star (bias corrected)	620.6
MLE Mean (bias corrected)	0.0466	MLE Sd (bias corrected)	0.0295

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.102	90% Percentile	0.0861
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.102	95% Percentile	0.103
95% WH Approx. Gamma UTL with 95% Coverage	0.114	99% Percentile	0.141
95% HW Approx. Gamma UTL with 95% Coverage	0.114		
95% WH USL	0.203	95% HW USL	0.214

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.907	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	1.878E-10	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.134	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.0799	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level**Background Statistics assuming Lognormal Distribution**

95% UTL with 95% Coverage	0.119	90% Percentile (z)	0.0823
95% UPL (t)	0.104	95% Percentile (z)	0.103
95% USL	0.276	99% Percentile (z)	0.155

Nonparametric Distribution Free Background Statistics**Data do not follow a Discernible Distribution (0.05)****Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	121	95% UTL with 95% Coverage	0.174
Approx, f used to compute achieved CC	1.592	Approximate Actual Confidence Coefficient achieved by UTL	0.872
		Approximate Sample Size needed to achieve specified CC	153
95% Percentile Bootstrap UTL with 95% Coverage	0.174	95% BCA Bootstrap UTL with 95% Coverage	0.173
95% UPL	0.165	90% Percentile	0.0647
90% Chebyshev UPL	0.163	95% Percentile	0.163
95% Chebyshev UPL	0.215	99% Percentile	0.177
95% USL	0.188		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Result (chinle mixing zone molybdenum)**General Statistics**

Total Number of Observations	67	Number of Missing Observations	0
Number of Distinct Observations	13		
Number of Detects	23	Number of Non-Detects	44
Number of Distinct Detects	11	Number of Distinct Non-Detects	5
Minimum Detect	0.01	Minimum Non-Detect	0.01
Maximum Detect	0.13	Maximum Non-Detect	0.05
Variance Detected	0.0014	Percent Non-Detects	65.67%
Mean Detected	0.0591	SD Detected	0.0374
Mean of Detected Logged Data	-3.116	SD of Detected Logged Data	0.872

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.994	d2max (for USL)	3.068
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.928	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.914	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.13	Lilliefors GOF Test
5% Lilliefors Critical Value	0.18	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0283	KM SD	0.0311
95% UTL95% Coverage	0.0903	95% KM UPL (t)	0.0806
90% KM Percentile (z)	0.0682	95% KM Percentile (z)	0.0795
99% KM Percentile (z)	0.101	95% KM USL	0.124

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0298	SD	0.0305
95% UTL95% Coverage	0.0906	95% UPL (t)	0.081
90% Percentile (z)	0.0689	95% Percentile (z)	0.08
99% Percentile (z)	0.101	95% USL	0.123

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.848	Anderson-Darling GOF Test
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.17	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.184	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.887	k star (bias corrected MLE)	1.67
Theta hat (MLE)	0.0313	Theta star (bias corrected MLE)	0.0354
nu hat (MLE)	86.8	nu star (bias corrected)	76.81
MLE Mean (bias corrected)	0.0591		
MLE Sd (bias corrected)	0.0458	95% Percentile of Chisquare (2kstar)	8.396

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.0299
Maximum	0.13	Median	0.0119
SD	0.031	CV	1.038
k hat (MLE)	1.373	k star (bias corrected MLE)	1.321
Theta hat (MLE)	0.0218	Theta star (bias corrected MLE)	0.0226
nu hat (MLE)	183.9	nu star (bias corrected)	177
MLE Mean (bias corrected)	0.0299	MLE Sd (bias corrected)	0.026
95% Percentile of Chisquare (2kstar)	7.184	90% Percentile	0.0643

Attachment 7: Statistical Calculations

95% Percentile 0.0813

99% Percentile 0.12

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.097	0.0989	95% Approx. Gamma UPL	0.0805	0.0807
95% Gamma USL	0.171	0.185			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0283	SD (KM)	0.0311
Variance (KM)	9.6909E-4	SE of Mean (KM)	0.00401
k hat (KM)	0.824	k star (KM)	0.797
nu hat (KM)	110.4	nu star (KM)	106.8
theta hat (KM)	0.0343	theta star (KM)	0.0354
80% gamma percentile (KM)	0.0462	90% gamma percentile (KM)	0.0688
95% gamma percentile (KM)	0.0918	99% gamma percentile (KM)	0.146

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0924	0.0934	95% Approx. Gamma UPL	0.0764	0.076
95% KM Gamma Percentile	0.0747	0.0742	95% Gamma USL	0.164	0.176

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.867
5% Shapiro Wilk Critical Value	0.914
Lilliefors Test Statistic	0.201
5% Lilliefors Critical Value	0.18

Shapiro Wilk GOF Test

Data Not Lognormal at 5% Significance Level

Lilliefors GOF Test

Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0276	Mean in Log Scale	-4.205
SD in Original Scale	0.0321	SD in Log Scale	1.144
95% UTL95% Coverage	0.146	95% BCA UTL95% Coverage	0.107
95% Bootstrap (%) UTL95% Coverage	0.11	95% UPL (t)	0.102
90% Percentile (z)	0.0646	95% Percentile (z)	0.0979
99% Percentile (z)	0.213	95% USL	0.499

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.998	95% KM UTL (Lognormal)95% Coverage	0.0985
KM SD of Logged Data	0.843	95% KM UPL (Lognormal)	0.0756
95% KM Percentile Lognormal (z)	0.0734	95% KM USL (Lognormal)	0.243

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0298	Mean in Log Scale	-3.872
SD in Original Scale	0.0305	SD in Log Scale	0.785
95% UTL95% Coverage	0.0995	95% UPL (t)	0.0778
90% Percentile (z)	0.0569	95% Percentile (z)	0.0757
99% Percentile (z)	0.129	95% USL	0.231

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	66	95% UTL with 95% Coverage	0.11
Approx, f used to compute achieved CC	1.737	Approximate Actual Confidence Coefficient achieved by UTL	0.854
Approximate Sample Size needed to achieve specified CC	93	95% UPL	0.1
95% USL	0.13	95% KM Chebyshev UPL	0.165

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (chinle mixing zone nitrate)

General Statistics

Total Number of Observations	58	Number of Missing Observations	0
Number of Distinct Observations	41		
Number of Detects	46	Number of Non-Detects	12
Number of Distinct Detects	41	Number of Distinct Non-Detects	1
Minimum Detect	0.1	Minimum Non-Detect	0.1
Maximum Detect	21.8	Maximum Non-Detect	0.1
Variance Detected	31.21	Percent Non-Detects	20.69%
Mean Detected	4.867	SD Detected	5.587
Mean of Detected Logged Data	0.782	SD of Detected Logged Data	1.447

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.024	d2max (for USL)	3.014
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.788	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.945	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.229	Lilliefors GOF Test
5% Lilliefors Critical Value	0.129	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	3.881	KM SD	5.286
95% UTL 95% Coverage	14.58	95% KM UPL (t)	12.8
90% KM Percentile (z)	10.66	95% KM Percentile (z)	12.58
99% KM Percentile (z)	16.18	95% KM USL	19.81

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	3.871	SD	5.34
95% UTL 95% Coverage	14.68	95% UPL (t)	12.88
90% Percentile (z)	10.71	95% Percentile (z)	12.65
99% Percentile (z)	16.29	95% USL	19.97

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.524	Anderson-Darling GOF Test
5% A-D Critical Value	0.791	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0942	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.136	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only

k hat (MLE)	0.748	k star (bias corrected MLE)	0.713
Theta hat (MLE)	6.509	Theta star (bias corrected MLE)	6.822
nu hat (MLE)	68.79	nu star (bias corrected)	65.64
MLE Mean (bias corrected)	4.867		
MLE Sd (bias corrected)	5.762	95% Percentile of Chisquare (2kstar)	4.824

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	3.862
Maximum	21.8	Median	1.525
SD	5.346	CV	1.384
k hat (MLE)	0.392	k star (bias corrected MLE)	0.383
Theta hat (MLE)	9.853	Theta star (bias corrected MLE)	10.08
nu hat (MLE)	45.47	nu star (bias corrected)	44.45
MLE Mean (bias corrected)	3.862	MLE Sd (bias corrected)	6.239
95% Percentile of Chisquare (2kstar)	3.232	90% Percentile	10.99
95% Percentile	16.29	99% Percentile	29.66

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	20.36	24.4	95% Approx. Gamma UPL	15.13	17.1
95% Gamma USL	42.3	59.39			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	3.881	SD (KM)	5.286
Variance (KM)	27.94	SE of Mean (KM)	0.702
k hat (KM)	0.539	k star (KM)	0.523
nu hat (KM)	62.53	nu star (KM)	60.62
theta hat (KM)	7.2	theta star (KM)	7.426
80% gamma percentile (KM)	6.385	90% gamma percentile (KM)	10.4
95% gamma percentile (KM)	14.67	99% gamma percentile (KM)	25.14

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	18.46	20.58	95% Approx. Gamma UPL	13.98	14.9
95% KM Gamma Percentile	13.48	14.3	95% Gamma USL	36.87	46.63

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.953	Shapiro Wilk GOF Test
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Attachment 7: Statistical Calculations

5% Shapiro Wilk Critical Value	0.945	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0748	Lilliefors GOF Test
5% Lilliefors Critical Value	0.129	Detected Data appear Lognormal at 5% Significance Level
Detected Data appear Lognormal at 5% Significance Level		

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	3.882	Mean in Log Scale	0.105
SD in Original Scale	5.332	SD in Log Scale	1.884
95% UTL95% Coverage	50.3	95% BCA UTL95% Coverage	17.47
95% Bootstrap (%) UTL95% Coverage	17.47	95% UPL (t)	26.62
90% Percentile (z)	12.42	95% Percentile (z)	24.62
99% Percentile (z)	88.87	95% USL	324.6

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.144	95% KM UTL (Lognormal)95% Coverage	42.77
KM SD of Logged Data	1.785	95% KM UPL (Lognormal)	23.41
95% KM Percentile Lognormal (z)	21.73	95% KM USL (Lognormal)	250.2

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	3.871	Mean in Log Scale	9.2157E-5
SD in Original Scale	5.34	SD in Log Scale	2.009
95% UTL95% Coverage	58.32	95% UPL (t)	29.59
90% Percentile (z)	13.12	95% Percentile (z)	27.22
99% Percentile (z)	107	95% USL	426

DL/2 Is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	57	95% UTL with95% Coverage	16.7
Approx, f used to compute achieved CC	1.5	Approximate Actual Confidence Coefficient achieved by UTL	0.793
Approximate Sample Size needed to achieve specified CC	93	95% UPL	15.4
95% USL	21.8	95% KM Chebyshev UPL	27.12

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (chinle mixing zone selenium)

General Statistics			
Total Number of Observations	96	Number of Missing Observations	0
Number of Distinct Observations	57		
Number of Detects	83	Number of Non-Detects	13
Number of Distinct Detects	56	Number of Distinct Non-Detects	3
Minimum Detect	0.005	Minimum Non-Detect	0.001
Maximum Detect	0.52	Maximum Non-Detect	0.01
Variance Detected	0.00445	Percent Non-Detects	13.54%

Attachment 7: Statistical Calculations

Mean Detected	0.0555	SD Detected	0.0667
Mean of Detected Logged Data	-3.358	SD of Detected Logged Data	0.988

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.93	d2max (for USL)	3.196
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.625
5% Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.224
5% Lilliefors Critical Value	0.0974

Normal GOF Test on Detected Observations Only

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0482	KM SD	0.0644
95% UTL95% Coverage	0.172	95% KM UPL (t)	0.156
90% KM Percentile (z)	0.131	95% KM Percentile (z)	0.154
99% KM Percentile (z)	0.198	95% KM USL	0.254

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0484	SD	0.0646
95% UTL95% Coverage	0.173	95% UPL (t)	0.156
90% Percentile (z)	0.131	95% Percentile (z)	0.155
99% Percentile (z)	0.199	95% USL	0.255

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.784
5% A-D Critical Value	0.777
K-S Test Statistic	0.107
5% K-S Critical Value	0.101

Anderson-Darling GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov GOF

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.21	k star (bias corrected MLE)	1.174
Theta hat (MLE)	0.0459	Theta star (bias corrected MLE)	0.0473
nu hat (MLE)	200.8	nu star (bias corrected)	194.9
MLE Mean (bias corrected)	0.0555		
MLE Sd (bias corrected)	0.0512	95% Percentile of Chisquare (2kstar)	6.65

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.005	Mean	0.0494
Maximum	0.52	Median	0.031
SD	0.0639	CV	1.295
k hat (MLE)	1.101	k star (bias corrected MLE)	1.074
Theta hat (MLE)	0.0448	Theta star (bias corrected MLE)	0.046

Attachment 7: Statistical Calculations

nu hat (MLE)	211.5	nu star (bias corrected)	206.2
MLE Mean (bias corrected)	0.0494	MLE Sd (bias corrected)	0.0476
95% Percentile of Chisquare (2kstar)	6.275	90% Percentile	0.112
95% Percentile	0.144	99% Percentile	0.219

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.166	0.172	95% Approx. Gamma UPL	0.14	0.143
95% Gamma USL	0.337	0.38			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0482	SD (KM)	0.0644
Variance (KM)	0.00415	SE of Mean (KM)	0.00662
k hat (KM)	0.559	k star (KM)	0.548
nu hat (KM)	107.3	nu star (KM)	105.3
theta hat (KM)	0.0862	theta star (KM)	0.0878
80% gamma percentile (KM)	0.0793	90% gamma percentile (KM)	0.128
95% gamma percentile (KM)	0.179	99% gamma percentile (KM)	0.304

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.187	0.205	95% Approx. Gamma UPL	0.154	0.165
95% KM Gamma Percentile	0.152	0.162	95% Gamma USL	0.409	0.513

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.936
5% Shapiro Wilk P Value	5.0396E-4
Lilliefors Test Statistic	0.161
5% Lilliefors Critical Value	0.0974

Shapiro Wilk GOF Test

Data Not Lognormal at 5% Significance Level

Lilliefors GOF Test

Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0486	Mean in Log Scale	-3.654
SD in Original Scale	0.0645	SD in Log Scale	1.195
95% UTL95% Coverage	0.26	95% BCA UTL95% Coverage	0.157
95% Bootstrap (%) UTL95% Coverage	0.157	95% UPL (t)	0.19
90% Percentile (z)	0.12	95% Percentile (z)	0.185
99% Percentile (z)	0.417	95% USL	1.179

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.834	95% KM UTL (Lognormal)95% Coverage	0.401
KM SD of Logged Data	1.513	95% KM UPL (Lognormal)	0.27
95% KM Percentile Lognormal (z)	0.26	95% KM USL (Lognormal)	2.72

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0484	Mean in Log Scale	-3.724
SD in Original Scale	0.0646	SD in Log Scale	1.319
95% UTL95% Coverage	0.308	95% UPL (t)	0.218
90% Percentile (z)	0.131	95% Percentile (z)	0.211
99% Percentile (z)	0.519	95% USL	1.634

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	94	95% UTL with 95% Coverage	0.157
Approx, f used to compute achieved CC	1.649	Approximate Actual Confidence Coefficient achieved by UTL	0.864
Approximate Sample Size needed to achieve specified CC	124	95% UPL	0.146
95% USL	0.52	95% KM Chebyshev UPL	0.33

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (chirle mixing zone sulfate)

General Statistics

Total Number of Observations	96	Number of Distinct Observations	84
Minimum	409	First Quartile	724
Second Largest	1850	Median	928.5
Maximum	1880	Third Quartile	1245
Mean	1028	SD	402.8
Coefficient of Variation	0.392	Skewness	0.538
Mean of logged Data	6.858	SD of logged Data	0.4

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.93	d2max (for USL)	3.196
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Normal GOF Test

Shapiro Wilk Test Statistic	0.915
5% Shapiro Wilk P Value	9.1083E-7
Lilliefors Test Statistic	0.118
5% Lilliefors Critical Value	0.0907

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	1805	90% Percentile (z)	1544
95% UPL (t)	1701	95% Percentile (z)	1691
95% USL	2315	99% Percentile (z)	1965

Gamma GOF Test

A-D Test Statistic	0.907
5% A-D Critical Value	0.754
K-S Test Statistic	0.0901
5% K-S Critical Value	0.0915

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

Attachment 7: Statistical Calculations

k hat (MLE)	6.636	k star (bias corrected MLE)	6.435
Theta hat (MLE)	154.9	Theta star (bias corrected MLE)	159.8
nu hat (MLE)	1274	nu star (bias corrected)	1236
MLE Mean (bias corrected)	1028	MLE Sd (bias corrected)	405.3

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1779	90% Percentile	1570
95% Hawkins Wixley (HW) Approx. Gamma UPL	1795	95% Percentile	1773
95% WH Approx. Gamma UTL with 95% Coverage	1934	99% Percentile	2197
95% HW Approx. Gamma UTL with 95% Coverage	1959		
95% WH USL	2816	95% HW USL	2928

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.948	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.00234	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0798	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0907	Data appear Lognormal at 5% Significance Level	

Data appear Approximate Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	2059	90% Percentile (z)	1589
95% UPL (t)	1856	95% Percentile (z)	1838
95% USL	3417	99% Percentile (z)	2413

Nonparametric Distribution Free Background Statistics

Data appear Approximate Gamma Distribution at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	94	95% UTL with 95% Coverage	1830
Approx, f used to compute achieved CC	1.649	Approximate Actual Confidence Coefficient achieved by UTL	0.864
		Approximate Sample Size needed to achieve specified CC	124
95% Percentile Bootstrap UTL with 95% Coverage	1830	95% BCA Bootstrap UTL with 95% Coverage	1778
95% UPL	1752	90% Percentile	1673
90% Chebyshev UPL	2243	95% Percentile	1750
95% Chebyshev UPL	2793	99% Percentile	1852
95% USL	1880		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (chinle mixing zone total dissolved solids)

General Statistics

Total Number of Observations	94	Number of Distinct Observations	81
Minimum	976	First Quartile	1363
Second Largest	3200	Median	1803
Maximum	3217	Third Quartile	2298
Mean	1935	SD	683.6

Attachment 7: Statistical Calculations

Coefficient of Variation	0.353	Skewness	0.544
Mean of logged Data	7.507	SD of logged Data	0.35

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.933	d2max (for USL)	3.188
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Normal GOF Test

Shapiro Wilk Test Statistic	0.89
5% Shapiro Wilk P Value	2.3775E-9
Lilliefors Test Statistic	0.124
5% Lilliefors Critical Value	0.0916

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	3256	90% Percentile (z)	2811
95% UPL (t)	3077	95% Percentile (z)	3059
95% USL	4114	99% Percentile (z)	3525

Gamma GOF Test

A-D Test Statistic	1.546
5% A-D Critical Value	0.753
K-S Test Statistic	0.109
5% K-S Critical Value	0.0923

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	8.387	k star (bias corrected MLE)	8.127
Theta hat (MLE)	230.7	Theta star (bias corrected MLE)	238.1
nu hat (MLE)	1577	nu star (bias corrected)	1528
MLE Mean (bias corrected)	1935	MLE Sd (bias corrected)	678.7

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	3179	90% Percentile	2840
95% Hawkins Wixley (HW) Approx. Gamma UPL	3199	95% Percentile	3169
95% WH Approx. Gamma UTL with 95% Coverage	3432	99% Percentile	3852
95% HW Approx. Gamma UTL with 95% Coverage	3465		
95% WH USL	4823	95% HW USL	4969

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.925
5% Shapiro Wilk P Value	1.5087E-5
Lilliefors Test Statistic	0.103
5% Lilliefors Critical Value	0.0916

Shapiro Wilk Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	3584	90% Percentile (z)	2852
95% UPL (t)	3269	95% Percentile (z)	3240
95% USL	5563	99% Percentile (z)	4113

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	92	95% UTL with 95% Coverage	3200
Approx, f used to compute achieved CC	1.614	Approximate Actual Confidence Coefficient achieved by UTL	0.855
		Approximate Sample Size needed to achieve specified CC	124
95% Percentile Bootstrap UTL with 95% Coverage	3200	95% BCA Bootstrap UTL with 95% Coverage	3200
95% UPL	3170	90% Percentile	3067
90% Chebyshev UPL	3996	95% Percentile	3138
95% Chebyshev UPL	4930	99% Percentile	3201
95% USL	3217		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (chinle mixing zone uranium)

General Statistics

Total Number of Observations	96	Number of Missing Observations	0
Number of Distinct Observations	76		
Number of Detects	94	Number of Non-Detects	2
Number of Distinct Detects	75	Number of Distinct Non-Detects	2
Minimum Detect	0.002	Minimum Non-Detect	0.00848
Maximum Detect	0.231	Maximum Non-Detect	0.01
Variance Detected	0.00394	Percent Non-Detects	2.083%
Mean Detected	0.0657	SD Detected	0.0628
Mean of Detected Logged Data	-3.252	SD of Detected Logged Data	1.123

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.93	d2max (for USL)	3.196
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.805
5% Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.258
5% Lilliefors Critical Value	0.0916

Normal GOF Test on Detected Observations Only

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0645	KM SD	0.0624
95% UTL95% Coverage	0.185	95% KM UPL (t)	0.169
90% KM Percentile (z)	0.144	95% KM Percentile (z)	0.167
99% KM Percentile (z)	0.21	95% KM USL	0.264

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0645	SD	0.0627
95% UTL95% Coverage	0.186	95% UPL (t)	0.169
90% Percentile (z)	0.145	95% Percentile (z)	0.168

99% Percentile (z) 0.21

95% USL 0.265

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons**Gamma GOF Tests on Detected Observations Only**

A-D Test Statistic	2.51	Anderson-Darling GOF Test
5% A-D Critical Value	0.781	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.175	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.0949	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level**Gamma Statistics on Detected Data Only**

k hat (MLE)	1.08	k star (bias corrected MLE)	1.053
Theta hat (MLE)	0.0609	Theta star (bias corrected MLE)	0.0624
nu hat (MLE)	203.1	nu star (bias corrected)	197.9
MLE Mean (bias corrected)	0.0657		
MLE Sd (bias corrected)	0.0641	95% Percentile of Chisquare (2kstar)	6.195

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.002	Mean	0.0646
Maximum	0.231	Median	0.0311
SD	0.0626	CV	0.97
k hat (MLE)	1.062	k star (bias corrected MLE)	1.035
Theta hat (MLE)	0.0608	Theta star (bias corrected MLE)	0.0624
nu hat (MLE)	203.8	nu star (bias corrected)	198.8
MLE Mean (bias corrected)	0.0646	MLE Sd (bias corrected)	0.0635
95% Percentile of Chisquare (2kstar)	6.128	90% Percentile	0.147
95% Percentile	0.191	99% Percentile	0.292

The following statistics are computed using Gamma ROS Statistics on Imputed Data**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.225	0.239	95% Approx. Gamma UPL	0.189	0.197
95% Gamma USL	0.459	0.54			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0645	SD (KM)	0.0624
Variance (KM)	0.00389	SE of Mean (KM)	0.0064
k hat (KM)	1.068	k star (KM)	1.042
nu hat (KM)	205.1	nu star (KM)	200
theta hat (KM)	0.0604	theta star (KM)	0.0619
80% gamma percentile (KM)	0.103	90% gamma percentile (KM)	0.147
95% gamma percentile (KM)	0.19	99% gamma percentile (KM)	0.291

The following statistics are computed using gamma distribution and KM estimates**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.225	0.239	95% Approx. Gamma UPL	0.189	0.198

Attachment 7: Statistical Calculations

95% KM Gamma Percentile	0.186	0.194	95% Gamma USL	0.461	0.544
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Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.935	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	1.2632E-4	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.123	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0916	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0645	Mean in Log Scale	-3.289
SD in Original Scale	0.0627	SD in Log Scale	1.141
95% UTL95% Coverage	0.337	95% BCA UTL95% Coverage	0.201
95% Bootstrap (%) UTL95% Coverage	0.201	95% UPL (t)	0.251
90% Percentile (z)	0.161	95% Percentile (z)	0.244
99% Percentile (z)	0.53	95% USL	1.43

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.296	95% KM UTL (Lognormal)95% Coverage	0.339
KM SD of Logged Data	1.147	95% KM UPL (Lognormal)	0.251
95% KM Percentile Lognormal (z)	0.244	95% KM USL (Lognormal)	1.447

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0645	Mean in Log Scale	-3.296
SD in Original Scale	0.0627	SD in Log Scale	1.152
95% UTL95% Coverage	0.342	95% UPL (t)	0.254
90% Percentile (z)	0.162	95% Percentile (z)	0.246
99% Percentile (z)	0.541	95% USL	1.472

DL/2 Is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	94	95% UTL with95% Coverage	0.201
Approx, f used to compute achieved CC	1.649	Approximate Actual Confidence Coefficient achieved by UTL	0.864
Approximate Sample Size needed to achieve specified CC	124	95% UPL	0.186
95% USL	0.231	95% KM Chebyshev UPL	0.338

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (low chinle non-mixing zone chlorine)

General Statistics

Total Number of Observations	28	Number of Distinct Observations	26
Minimum	46	First Quartile	59.75
Second Largest	634	Median	101

Attachment 7: Statistical Calculations

Maximum	657	Third Quartile	248
Mean	204	SD	215.3
Coefficient of Variation	1.055	Skewness	1.311
Mean of logged Data	4.859	SD of logged Data	0.927

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.246	d2max (for USL)	2.714
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Normal GOF Test

Shapiro Wilk Test Statistic	0.696
5% Shapiro Wilk Critical Value	0.924
Lilliefors Test Statistic	0.333
5% Lilliefors Critical Value	0.164

Shapiro Wilk GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	687.7	90% Percentile (z)	480
95% UPL (t)	577.3	95% Percentile (z)	558.2
95% USL	788.6	99% Percentile (z)	705

Gamma GOF Test

A-D Test Statistic	2.373
5% A-D Critical Value	0.769
K-S Test Statistic	0.249
5% K-S Critical Value	0.169

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.228	k star (bias corrected MLE)	1.12
Theta hat (MLE)	166.2	Theta star (bias corrected MLE)	182.1
nu hat (MLE)	68.76	nu star (bias corrected)	62.73
MLE Mean (bias corrected)	204	MLE Sd (bias corrected)	192.8

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	597	90% Percentile	456.8
95% Hawkins Wixley (HW) Approx. Gamma UPL	604.4	95% Percentile	587.3
95% WH Approx. Gamma UTL with 95% Coverage	815.3	99% Percentile	887.9
95% HW Approx. Gamma UTL with 95% Coverage	850.8		
95% WH USL	1056	95% HW USL	1136

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.838
5% Shapiro Wilk Critical Value	0.924
Lilliefors Test Statistic	0.182
5% Lilliefors Critical Value	0.164

Shapiro Wilk Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1033	90% Percentile (z)	422.5
95% UPL (t)	642.3	95% Percentile (z)	591.7
95% USL	1594	99% Percentile (z)	1113

Nonparametric Distribution Free Background Statistics**Data do not follow a Discernible Distribution (0.05)****Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	28	95% UTL with 95% Coverage	657
Approx, f used to compute achieved CC	1.474	Approximate Actual Confidence Coefficient achieved by UTL	0.762
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	657	95% BCA Bootstrap UTL with 95% Coverage	657
95% UPL	646.7	90% Percentile	614.1
90% Chebyshev UPL	861.5	95% Percentile	633.7
95% Chebyshev UPL	1159	99% Percentile	650.8
95% USL	657		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (low chine non-mixing zone selenium)**General Statistics**

Total Number of Observations	59	Number of Missing Observations	0
Number of Distinct Observations	35		
Number of Detects	43	Number of Non-Detects	16
Number of Distinct Detects	34	Number of Distinct Non-Detects	3
Minimum Detect	0.008	Minimum Non-Detect	0.005
Maximum Detect	0.362	Maximum Non-Detect	0.014
Variance Detected	0.0138	Percent Non-Detects	27.12%
Mean Detected	0.0893	SD Detected	0.118
Mean of Detected Logged Data	-3.314	SD of Detected Logged Data	1.322

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.02	d2max (for USL)	3.021
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.674	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.943	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.379	Lilliefors GOF Test
5% Lilliefors Critical Value	0.134	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

KM Mean	0.0666	KM SD	0.106
95% UTL 95% Coverage	0.281	95% KM UPL (t)	0.245
90% KM Percentile (z)	0.202	95% KM Percentile (z)	0.241
99% KM Percentile (z)	0.313	95% KM USL	0.387

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0661	SD	0.107
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95% UTL	95% Coverage	0.283	95% UPL (t)	0.247
90% Percentile (z)		0.204	95% Percentile (z)	0.242
99% Percentile (z)		0.316	95% USL	0.39

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	4.591	Anderson-Darling GOF Test
5% A-D Critical Value	0.796	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.298	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.141	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.676	k star (bias corrected MLE)	0.645
Theta hat (MLE)	0.132	Theta star (bias corrected MLE)	0.139
nu hat (MLE)	58.16	nu star (bias corrected)	55.43
MLE Mean (bias corrected)	0.0893		
MLE Sd (bias corrected)	0.111	95% Percentile of Chisquare (2kstar)	4.52

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.008	Mean	0.0678
Maximum	0.362	Median	0.016
SD	0.106	CV	1.567
k hat (MLE)	0.631	k star (bias corrected MLE)	0.61
Theta hat (MLE)	0.108	Theta star (bias corrected MLE)	0.111
nu hat (MLE)	74.41	nu star (bias corrected)	71.96
MLE Mean (bias corrected)	0.0678	MLE Sd (bias corrected)	0.0868
95% Percentile of Chisquare (2kstar)	4.363	90% Percentile	0.176
95% Percentile	0.243	99% Percentile	0.404

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.293	0.298	95% Approx. Gamma UPL	0.225	0.222
95% Gamma USL	0.576	0.644			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0666	SD (KM)	0.106
Variance (KM)	0.0112	SE of Mean (KM)	0.014
k hat (KM)	0.394	k star (KM)	0.386
nu hat (KM)	46.53	nu star (KM)	45.5
theta hat (KM)	0.169	theta star (KM)	0.173
80% gamma percentile (KM)	0.107	90% gamma percentile (KM)	0.189
95% gamma percentile (KM)	0.28	99% gamma percentile (KM)	0.51

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

Attachment 7: Statistical Calculations

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.297	0.306	95% Approx. Gamma UPL	0.226	0.225
95% KM Gamma Percentile	0.218	0.216	95% Gamma USL	0.595	0.681

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.805	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.943	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.223	Lilliefors GOF Test
5% Lilliefors Critical Value	0.134	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0658	Mean in Log Scale	-4.085
SD in Original Scale	0.107	SD in Log Scale	1.74
95% UTL95% Coverage	0.565	95% BCA UTL95% Coverage	0.34
95% Bootstrap (%) UTL95% Coverage	0.337	95% UPL (t)	0.316
90% Percentile (z)	0.156	95% Percentile (z)	0.294
99% Percentile (z)	0.963	95% USL	3.22

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.833	95% KM UTL (Lognormal)95% Coverage	0.372
KM SD of Logged Data	1.407	95% KM UPL (Lognormal)	0.232
95% KM Percentile Lognormal (z)	0.219	95% KM USL (Lognormal)	1.517

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0661	Mean in Log Scale	-3.964
SD in Original Scale	0.107	SD in Log Scale	1.568
95% UTL95% Coverage	0.452	95% UPL (t)	0.267
90% Percentile (z)	0.142	95% Percentile (z)	0.251
99% Percentile (z)	0.73	95% USL	2.167

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	58	95% UTL with 95% Coverage	0.337
Approx, f used to compute achieved CC	1.526	Approximate Actual Confidence Coefficient achieved by UTL	0.801
Approximate Sample Size needed to achieve specified CC	93	95% UPL	0.332
95% USL	0.362	95% KM Chebyshev UPL	0.533

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (low chine non-mixing zone sulfate)

General Statistics

Total Number of Observations	60	Number of Distinct Observations	56
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Attachment 7: Statistical Calculations

Minimum	284	First Quartile	537
Second Largest	2080	Median	724.5
Maximum	2140	Third Quartile	1570
Mean	990.9	SD	577.9
Coefficient of Variation	0.583	Skewness	0.608
Mean of logged Data	6.725	SD of logged Data	0.604

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.017	d2max (for USL)	3.027
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Normal GOF Test

Shapiro Wilk Test Statistic	0.854
5% Shapiro Wilk P Value	8.6643E-8
Lilliefors Test Statistic	0.209
5% Lilliefors Critical Value	0.114

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	2156	90% Percentile (z)	1732
95% UPL (t)	1965	95% Percentile (z)	1941
95% USL	2740	99% Percentile (z)	2335

Gamma GOF Test

A-D Test Statistic	2.01
5% A-D Critical Value	0.758
K-S Test Statistic	0.148
5% K-S Critical Value	0.116

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.036	k star (bias corrected MLE)	2.895
Theta hat (MLE)	326.4	Theta star (bias corrected MLE)	342.3
nu hat (MLE)	364.3	nu star (bias corrected)	347.4
MLE Mean (bias corrected)	990.9	MLE Sd (bias corrected)	582.4

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2119	90% Percentile	1772
95% Hawkins Wixley (HW) Approx. Gamma UPL	2154	95% Percentile	2101
95% WH Approx. Gamma UTL with 95% Coverage	2451	99% Percentile	2816
95% HW Approx. Gamma UTL with 95% Coverage	2519		
95% WH USL	3674	95% HW USL	3918

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.91
5% Shapiro Wilk P Value	1.4858E-4
Lilliefors Test Statistic	0.143
5% Lilliefors Critical Value	0.114

Shapiro Wilk Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	2814	90% Percentile (z)	1805
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95% UPL (t) 2303
95% USL 5177

95% Percentile (z) 2248
99% Percentile (z) 3392

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	59	95% UTL with 95% Coverage	2080
Approx, f used to compute achieved CC	1.553	Approximate Actual Confidence Coefficient achieved by UTL	0.808
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	2083	95% BCA Bootstrap UTL with 95% Coverage	2083
95% UPL	2066	90% Percentile	1801
90% Chebyshev UPL	2739	95% Percentile	2003
95% Chebyshev UPL	3531	99% Percentile	2105
95% USL	2140		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (low chine non-mixing zone total dissolved solids)

General Statistics

Total Number of Observations	58	Number of Distinct Observations	52
Minimum	805	First Quartile	1133
Second Largest	4180	Median	1530
Maximum	4180	Third Quartile	3687
Mean	2181	SD	1269
Coefficient of Variation	0.582	Skewness	0.588
Mean of logged Data	7.521	SD of logged Data	0.579

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.024	d2max (for USL)	3.014
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Normal GOF Test

Shapiro Wilk Test Statistic	0.784
5% Shapiro Wilk P Value	4.225E-11
Lilliefors Test Statistic	0.245
5% Lilliefors Critical Value	0.116

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	4748	90% Percentile (z)	3806
95% UPL (t)	4320	95% Percentile (z)	4267
95% USL	6004	99% Percentile (z)	5132

Gamma GOF Test

A-D Test Statistic	3.524
5% A-D Critical Value	0.757

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

K-S Test Statistic	0.193	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.118	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.172	k star (bias corrected MLE)	3.019
Theta hat (MLE)	687.5	Theta star (bias corrected MLE)	722.3
nu hat (MLE)	367.9	nu star (bias corrected)	350.2
MLE Mean (bias corrected)	2181	MLE Sd (bias corrected)	1255

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4607	90% Percentile	3863
95% Hawkins Wixley (HW) Approx. Gamma UPL	4666	95% Percentile	4568
95% WH Approx. Gamma UTL with 95% Coverage	5331	99% Percentile	6095
95% HW Approx. Gamma UTL with 95% Coverage	5454		
95% WH USL	7880	95% HW USL	8341

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.851	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	1.1637E-7	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.176	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.116	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	5959	90% Percentile (z)	3878
95% UPL (t)	4901	95% Percentile (z)	4785
95% USL	10566	99% Percentile (z)	7097

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	57	95% UTL with 95% Coverage	4180
Approx, f used to compute achieved CC	1.5	Approximate Actual Confidence Coefficient achieved by UTL	0.793
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	4180	95% BCA Bootstrap UTL with 95% Coverage	4180
95% UPL	4152	90% Percentile	4076
90% Chebyshev UPL	6019	95% Percentile	4142
95% Chebyshev UPL	7757	99% Percentile	4180
95% USL	4180		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (mid chinle non-mixing zone selenium)

General Statistics

Attachment 7: Statistical Calculations

Total Number of Observations	192	Number of Missing Observations	0
Number of Distinct Observations	37		
Number of Detects	123	Number of Non-Detects	69
Number of Distinct Detects	35	Number of Distinct Non-Detects	4
Minimum Detect	0.003	Minimum Non-Detect	0.001
Maximum Detect	0.222	Maximum Non-Detect	0.01
Variance Detected	8.0371E-4	Percent Non-Detects	35.94%
Mean Detected	0.0226	SD Detected	0.0283
Mean of Detected Logged Data	-4.169	SD of Detected Logged Data	0.768

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.84	d2max (for USL)	3.42
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.565
5% Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.317
5% Lilliefors Critical Value	0.0802

Normal GOF Test on Detected Observations Only

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0155	KM SD	0.0245
95% UTL95% Coverage	0.0607	95% KM UPL (t)	0.0562
90% KM Percentile (z)	0.047	95% KM Percentile (z)	0.0559
99% KM Percentile (z)	0.0726	95% KM USL	0.0994

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.016	SD	0.0243
95% UTL95% Coverage	0.0607	95% UPL (t)	0.0563
90% Percentile (z)	0.0472	95% Percentile (z)	0.056
99% Percentile (z)	0.0726	95% USL	0.0992

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	9.986
5% A-D Critical Value	0.771
K-S Test Statistic	0.238
5% K-S Critical Value	0.0851

Anderson-Darling GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov GOF

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.467	k star (bias corrected MLE)	1.436
Theta hat (MLE)	0.0154	Theta star (bias corrected MLE)	0.0157
nu hat (MLE)	360.8	nu star (bias corrected)	353.3
MLE Mean (bias corrected)	0.0226		
MLE Sd (bias corrected)	0.0188	95% Percentile of Chisquare (2kstar)	7.592

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.003	Mean	0.0181
Maximum	0.222	Median	0.01
SD	0.0235	CV	1.299
k hat (MLE)	1.753	k star (bias corrected MLE)	1.729
Theta hat (MLE)	0.0103	Theta star (bias corrected MLE)	0.0104
nu hat (MLE)	673.2	nu star (bias corrected)	664
MLE Mean (bias corrected)	0.0181	MLE Sd (bias corrected)	0.0137
95% Percentile of Chisquare (2kstar)	8.596	90% Percentile	0.0364
95% Percentile	0.0449	99% Percentile	0.064

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0475	0.0463	95% Approx. Gamma UPL	0.043	0.0417
95% Gamma USL	0.1	0.103			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0155	SD (KM)	0.0245
Variance (KM)	6.0197E-4	SE of Mean (KM)	0.00179
k hat (KM)	0.4	k star (KM)	0.397
nu hat (KM)	153.5	nu star (KM)	152.4
theta hat (KM)	0.0388	theta star (KM)	0.0391
80% gamma percentile (KM)	0.025	90% gamma percentile (KM)	0.0439
95% gamma percentile (KM)	0.0646	99% gamma percentile (KM)	0.117

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0536	0.0555	95% Approx. Gamma UPL	0.0469	0.0479
95% KM Gamma Percentile	0.0465	0.0474	95% Gamma USL	0.139	0.165

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.877	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	2.442E-15	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.235	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0802	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0157	Mean in Log Scale	-4.772
SD in Original Scale	0.0245	SD in Log Scale	1.07
95% UTL95% Coverage	0.0607	95% BCA UTL95% Coverage	0.09
95% Bootstrap (%) UTL95% Coverage	0.09	95% UPL (t)	0.0499
90% Percentile (z)	0.0334	95% Percentile (z)	0.0492
99% Percentile (z)	0.102	95% USL	0.329

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.898	95% KM UTL (Lognormal)95% Coverage	0.0749
KM SD of Logged Data	1.253	95% KM UPL (Lognormal)	0.0595
95% KM Percentile Lognormal (z)	0.0586	95% KM USL (Lognormal)	0.542

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.016	Mean in Log Scale	-4.672
SD in Original Scale	0.0243	SD in Log Scale	0.959
95% UTL 95% Coverage	0.0546	95% UPL (t)	0.0458
90% Percentile (z)	0.0319	95% Percentile (z)	0.0452
99% Percentile (z)	0.087	95% USL	0.248

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	187	95% UTL with 95% Coverage	0.09
Approx, f used to compute achieved CC	1.64	Approximate Actual Confidence Coefficient achieved by UTL	0.922
Approximate Sample Size needed to achieve specified CC	208	95% UPL	0.083
95% USL	0.222	95% KM Chebyshev UPL	0.123

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (mid chlnle non-mixing zone sulfate)**General Statistics**

Total Number of Observations	192	Number of Distinct Observations	153
Minimum	319	First Quartile	523.8
Second Largest	1141	Median	667
Maximum	1430	Third Quartile	772
Mean	654.4	SD	162.2
Coefficient of Variation	0.248	Skewness	0.474
Mean of logged Data	6.452	SD of logged Data	0.256

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.84	d2max (for USL)	3.42
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Normal GOF Test

Shapiro Wilk Test Statistic	0.958
5% Shapiro Wilk P Value	1.2989E-4
Lilliefors Test Statistic	0.0805
5% Lilliefors Critical Value	0.0644

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	952.9	90% Percentile (z)	862.3
95% UPL (t)	923.2	95% Percentile (z)	921.2
95% USL	1209	99% Percentile (z)	1032

Gamma GOF Test

A-D Test Statistic	2.363
5% A-D Critical Value	0.751
K-S Test Statistic	0.102
5% K-S Critical Value	0.0656

Anderson-Darling Gamma GOF Test
Data Not Gamma Distributed at 5% Significance Level
Kolmogorov-Smirnov Gamma GOF Test
Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics			
k hat (MLE)	16.01	k star (bias corrected MLE)	15.76
Theta hat (MLE)	40.88	Theta star (bias corrected MLE)	41.52
nu hat (MLE)	6147	nu star (bias corrected)	6052
MLE Mean (bias corrected)	654.4	MLE Sd (bias corrected)	164.8

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	947.9	90% Percentile	872.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	952.5	95% Percentile	947
95% WH Approx. Gamma UTL with 95% Coverage	986.8	99% Percentile	1097
95% HW Approx. Gamma UTL with 95% Coverage	993.1		
95% WH USL	1368	95% HW USL	1400

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.956	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	6.9836E-5	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.112	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.0644	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1016	90% Percentile (z)	880.3
95% UPL (t)	969.2	95% Percentile (z)	966.1
95% USL	1522	99% Percentile (z)	1150

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	187	95% UTL with 95% Coverage	896
Approx, f used to compute achieved CC	1.64	Approximate Actual Confidence Coefficient achieved by UTL	0.922
		Approximate Sample Size needed to achieve specified CC	208
95% Percentile Bootstrap UTL with 95% Coverage	895.5	95% BCA Bootstrap UTL with 95% Coverage	895.5
95% UPL	867.1	90% Percentile	819.8
90% Chebyshev UPL	1142	95% Percentile	857.2
95% Chebyshev UPL	1363	99% Percentile	1048
95% USL	1430		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (mid chinle non-mixing zone total dissolved solids)

General Statistics

Total Number of Observations	187	Number of Distinct Observations	110
Minimum	560	First Quartile	1114
Second Largest	1820	Median	1290
Maximum	1970	Third Quartile	1451
Mean	1273	SD	225.6
Coefficient of Variation	0.177	Skewness	-0.224
Mean of logged Data	7.132	SD of logged Data	0.19

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.843	d2max (for USL)	3.412
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Normal GOF Test

Shapiro Wilk Test Statistic	0.979	Normal GOF Test
5% Shapiro Wilk P Value	0.277	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.0762	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0652	Data Not Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	1688	90% Percentile (z)	1562
95% UPL (t)	1647	95% Percentile (z)	1644
95% USL	2043	99% Percentile (z)	1798

Gamma GOF Test

A-D Test Statistic	1.907	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.083	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.0668	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	29.57	k star (bias corrected MLE)	29.09
Theta hat (MLE)	43.05	Theta star (bias corrected MLE)	43.74
nu hat (MLE)	11057	nu star (bias corrected)	10881
MLE Mean (bias corrected)	1273	MLE Sd (bias corrected)	235.9

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1685	90% Percentile	1583
95% Hawkins Wixley (HW) Approx. Gamma UPL	1692	95% Percentile	1684
95% WH Approx. Gamma UTL with 95% Coverage	1738	99% Percentile	1885
95% HW Approx. Gamma UTL with 95% Coverage	1747		
95% WH USL	2232	95% HW USL	2266

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	2.3611E-6	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0885	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.0652	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1776	90% Percentile (z)	1596
95% UPL (t)	1714	95% Percentile (z)	1710
95% USL	2393	99% Percentile (z)	1947

Nonparametric Distribution Free Background Statistics**Data appear Approximate Normal at 5% Significance Level****Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	182	95% UTL with 95% Coverage	1636
Approx, f used to compute achieved CC	1.596	Approximate Actual Confidence Coefficient achieved by UTL	0.91
		Approximate Sample Size needed to achieve specified CC	208
95% Percentile Bootstrap UTL with 95% Coverage	1625	95% BCA Bootstrap UTL with 95% Coverage	1616
95% UPL	1560	90% Percentile	1514
90% Chebyshev UPL	1951	95% Percentile	1557
95% Chebyshev UPL	2259	99% Percentile	1786
95% USL	1970		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (mid chlnle non-mixing zone uranium)**General Statistics**

Total Number of Observations	190	Number of Missing Observations	0
Number of Distinct Observations	56		
Number of Detects	130	Number of Non-Detects	60
Number of Distinct Detects	56	Number of Distinct Non-Detects	2
Minimum Detect	0.00339	Minimum Non-Detect	0.00848
Maximum Detect	0.136	Maximum Non-Detect	0.01
Variance Detected	5.5861E-4	Percent Non-Detects	31.58%
Mean Detected	0.0259	SD Detected	0.0236
Mean of Detected Logged Data	-3.942	SD of Detected Logged Data	0.724

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.841	d2max (for USL)	3.417
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.719
5% Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.268
5% Lilliefors Critical Value	0.0781

Normal GOF Test on Detected Observations Only

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

KM Mean	0.0195	KM SD	0.0217
95% UTL95% Coverage	0.0594	95% KM UPL (t)	0.0554

90% KM Percentile (z)	0.0473	95% KM Percentile (z)	0.0551
99% KM Percentile (z)	0.0699	95% KM USL	0.0935

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0192	SD	0.0219
95% UTL/95% Coverage	0.0595	95% UPL (t)	0.0555
90% Percentile (z)	0.0472	95% Percentile (z)	0.0552
99% Percentile (z)	0.0701	95% USL	0.094

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.37	Anderson-Darling GOF Test
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.205	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.0829	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.887	k star (bias corrected MLE)	1.848
Theta hat (MLE)	0.0137	Theta star (bias corrected MLE)	0.014
nu hat (MLE)	490.5	nu star (bias corrected)	480.6
MLE Mean (bias corrected)	0.0259		
MLE Sd (bias corrected)	0.019	95% Percentile of Chisquare (2kstar)	8.991

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.00339	Mean	0.0209
Maximum	0.136	Median	0.013
SD	0.0209	CV	1.001
k hat (MLE)	1.924	k star (bias corrected MLE)	1.897
Theta hat (MLE)	0.0108	Theta star (bias corrected MLE)	0.011
nu hat (MLE)	731	nu star (bias corrected)	720.8
MLE Mean (bias corrected)	0.0209	MLE Sd (bias corrected)	0.0152
95% Percentile of Chisquare (2kstar)	9.151	90% Percentile	0.0411
95% Percentile	0.0503	99% Percentile	0.0709

The following statistics are computed using Gamma ROS Statistics on Imputed Data**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0543	0.054	95% Approx. Gamma UPL	0.0492	0.0488
95% Gamma USL	0.112	0.119			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0195	SD (KM)	0.0217
Variance (KM)	4.6888E-4	SE of Mean (KM)	0.00159
k hat (KM)	0.811	k star (KM)	0.802
nu hat (KM)	308.3	nu star (KM)	304.8
theta hat (KM)	0.024	theta star (KM)	0.0243

Attachment 7: Statistical Calculations

80% gamma percentile (KM)	0.0319	90% gamma percentile (KM)	0.0474
95% gamma percentile (KM)	0.0632	99% gamma percentile (KM)	0.101

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0575	0.0584	95% Approx. Gamma UPL	0.0515	0.0518
95% KM Gamma Percentile	0.0511	0.0514	95% Gamma USL	0.13	0.145

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.943	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	3.8228E-5	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.153	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0781	Data Not Lognormal at 5% Significance Level
Data Not Lognormal at 5% Significance Level		

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0193	Mean in Log Scale	-4.4
SD in Original Scale	0.0218	SD in Log Scale	0.942
95% UTL95% Coverage	0.0696	95% BCA UTL95% Coverage	0.0678
95% Bootstrap (%) UTL95% Coverage	0.0762	95% UPL (t)	0.0585
90% Percentile (z)	0.0411	95% Percentile (z)	0.0578
99% Percentile (z)	0.11	95% USL	0.307

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.354	95% KM UTL (Lognormal)95% Coverage	0.0649
KM SD of Logged Data	0.88	95% KM UPL (Lognormal)	0.0552
95% KM Percentile Lognormal (z)	0.0546	95% KM USL (Lognormal)	0.26

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0192	Mean in Log Scale	-4.398
SD in Original Scale	0.0219	SD in Log Scale	0.902
95% UTL95% Coverage	0.0647	95% UPL (t)	0.0548
90% Percentile (z)	0.0391	95% Percentile (z)	0.0542
99% Percentile (z)	0.1	95% USL	0.268

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	185	95% UTL with 95% Coverage	0.0763
Approx, f used to compute achieved CC	1.623	Approximate Actual Confidence Coefficient achieved by UTL	0.917
Approximate Sample Size needed to achieve specified CC	208	95% UPL	0.0684
95% USL	0.136	95% KM Chebyshev UPL	0.114

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (upper chinle non-mixing zone chlorine)

General Statistics

Total Number of Observations	127	Number of Distinct Observations	79
Minimum	21	First Quartile	43
Second Largest	525	Median	57
Maximum	540	Third Quartile	217
Mean	142.3	SD	133.9
Coefficient of Variation	0.94	Skewness	1.233
Mean of logged Data	4.533	SD of logged Data	0.922

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.889	d2max (for USL)	3.289
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Normal GOF Test

Shapiro Wilk Test Statistic	0.785
5% Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.242
5% Lilliefors Critical Value	0.079

Normal GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	395.2	90% Percentile (z)	313.9
95% UPL (t)	365	95% Percentile (z)	362.5
95% USL	582.6	99% Percentile (z)	453.7

Gamma GOF Test

A-D Test Statistic	6.869
5% A-D Critical Value	0.775
K-S Test Statistic	0.231
5% K-S Critical Value	0.0844

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.319	k star (bias corrected MLE)	1.293
Theta hat (MLE)	108	Theta star (bias corrected MLE)	110.1
nu hat (MLE)	334.9	nu star (bias corrected)	328.3
MLE Mean (bias corrected)	142.3	MLE Sd (bias corrected)	125.2

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	386.3	90% Percentile	307.6
95% Hawkins Wixley (HW) Approx. Gamma UPL	393.8	95% Percentile	389.9
95% WH Approx. Gamma UTL with 95% Coverage	443.4	99% Percentile	577.7
95% HW Approx. Gamma UTL with 95% Coverage	458		
95% WH USL	927.7	95% HW USL	1048

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.865
5% Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.213

Shapiro Wilk Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

5% Lilliefors Critical Value 0.079

Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level**Background Statistics assuming Lognormal Distribution**

95% UTL with 95% Coverage	530.8	90% Percentile (z)	303.2
95% UPL (t)	431.2	95% Percentile (z)	423.9
95% USL	1929	99% Percentile (z)	794.3

Nonparametric Distribution Free Background Statistics**Data do not follow a Discernible Distribution (0.05)****Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	124	95% UTL with 95% Coverage	489
Approx, f used to compute achieved CC	1.632	Approximate Actual Confidence Coefficient achieved by UTL	0.884
		Approximate Sample Size needed to achieve specified CC	153
95% Percentile Bootstrap UTL with 95% Coverage	489	95% BCA Bootstrap UTL with 95% Coverage	484.8
95% UPL	422.8	90% Percentile	360.6
90% Chebyshev UPL	545.5	95% Percentile	411.7
95% Chebyshev UPL	728.1	99% Percentile	517.5
95% USL	540		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (upper chinle non-mixing zone selenium)**General Statistics**

Total Number of Observations	165	Number of Missing Observations	0
Number of Distinct Observations	37		
Number of Detects	91	Number of Non-Detects	74
Number of Distinct Detects	32	Number of Distinct Non-Detects	7
Minimum Detect	0.003	Minimum Non-Detect	0.001
Maximum Detect	0.244	Maximum Non-Detect	0.0125
Variance Detected	0.00136	Percent Non-Detects	44.85%
Mean Detected	0.0279	SD Detected	0.0369
Mean of Detected Logged Data	-3.995	SD of Detected Logged Data	0.816

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.857	d2max (for USL)	3.373
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.564
5% Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.291
5% Lilliefors Critical Value	0.0931

Normal GOF Test on Detected Observations Only

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

KM Mean	0.0162	KM SD	0.0302
95% UTL95% Coverage	0.0723	95% KM UPL (t)	0.0663
90% KM Percentile (z)	0.0549	95% KM Percentile (z)	0.0659
99% KM Percentile (z)	0.0865	95% KM USL	0.118

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0169	SD	0.0299
95% UTL95% Coverage	0.0725	95% UPL (t)	0.0666
90% Percentile (z)	0.0553	95% Percentile (z)	0.0662
99% Percentile (z)	0.0866	95% USL	0.118

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.887	Anderson-Darling GOF Test
5% A-D Critical Value	0.775	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.2	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.0958	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.34	k star (bias corrected MLE)	1.303
Theta hat (MLE)	0.0208	Theta star (bias corrected MLE)	0.0214
nu hat (MLE)	243.9	nu star (bias corrected)	237.2
MLE Mean (bias corrected)	0.0279		
MLE Sd (bias corrected)	0.0245	95% Percentile of Chisquare (2kstar)	7.121

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.003	Mean	0.0199
Maximum	0.244	Median	0.01
SD	0.0287	CV	1.445
k hat (MLE)	1.569	k star (bias corrected MLE)	1.545
Theta hat (MLE)	0.0127	Theta star (bias corrected MLE)	0.0129
nu hat (MLE)	517.8	nu star (bias corrected)	509.7
MLE Mean (bias corrected)	0.0199	MLE Sd (bias corrected)	0.016
95% Percentile of Chisquare (2kstar)	7.969	90% Percentile	0.0412
95% Percentile	0.0513	99% Percentile	0.0742

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0544	0.0528	95% Approx. Gamma UPL	0.0487	0.047
95% Gamma USL	0.115	0.118			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0162	SD (KM)	0.0302
Variance (KM)	9.1285E-4	SE of Mean (KM)	0.00237
k hat (KM)	0.287	k star (KM)	0.285

Attachment 7: Statistical Calculations

nu hat (KM)	94.56	nu star (KM)	94.17
theta hat (KM)	0.0564	theta star (KM)	0.0567
80% gamma percentile (KM)	0.0245	90% gamma percentile (KM)	0.048
95% gamma percentile (KM)	0.0752	99% gamma percentile (KM)	0.146

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0621	0.0647	95% Approx. Gamma UPL	0.0529	0.054
95% KM Gamma Percentile	0.0523	0.0533	95% Gamma USL	0.171	0.209

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.904	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	1.4746E-7	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.212	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0931	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0167	Mean in Log Scale	-4.897
SD in Original Scale	0.03	SD in Log Scale	1.254
95% UTL95% Coverage	0.0767	95% BCA UTL95% Coverage	0.0976
95% Bootstrap (%) UTL95% Coverage	0.099	95% UPL (t)	0.0598
90% Percentile (z)	0.0373	95% Percentile (z)	0.0588
99% Percentile (z)	0.138	95% USL	0.513

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-5.179	95% KM UTL (Lognormal)95% Coverage	0.0911
KM SD of Logged Data	1.499	95% KM UPL (Lognormal)	0.0678
95% KM Percentile Lognormal (z)	0.0663	95% KM USL (Lognormal)	0.884

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0169	Mean in Log Scale	-4.81
SD in Original Scale	0.0299	SD in Log Scale	1.157
95% UTL95% Coverage	0.0698	95% UPL (t)	0.0555
90% Percentile (z)	0.0359	95% Percentile (z)	0.0546
99% Percentile (z)	0.12	95% USL	0.403

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	161	95% UTL with 95% Coverage	0.102
Approx, f used to compute achieved CC	1.695	Approximate Actual Confidence Coefficient achieved by UTL	0.919
Approximate Sample Size needed to achieve specified CC	181	95% UPL	0.0665
95% USL	0.244	95% KM Chebyshev UPL	0.148

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (upper chinle non-mixing zone sulfate)

General Statistics

Total Number of Observations	167	Number of Distinct Observations	130
Minimum	535	First Quartile	699
Second Largest	973	Median	743.5
Maximum	998	Third Quartile	794
Mean	747.4	SD	84.36
Coefficient of Variation	0.113	Skewness	0.0917
Mean of logged Data	6.61	SD of logged Data	0.114

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.855	d2max (for USL)	3.377
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Normal GOF Test

Shapiro Wilk Test Statistic	0.982	
5% Shapiro Wilk P Value	0.483	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.0439	
5% Lilliefors Critical Value	0.069	Data appear Normal at 5% Significance Level

Normal GOF Test

Lilliefors GOF Test

Data appear Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	903.9	90% Percentile (z)	855.5
95% UPL (t)	887.4	95% Percentile (z)	886.2
95% USL	1032	99% Percentile (z)	943.7

Gamma GOF Test

A-D Test Statistic	0.554	
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0539	
5% K-S Critical Value	0.0719	Detected data appear Gamma Distributed at 5% Significance Level

Anderson-Darling Gamma GOF Test

Kolmogorov-Smirnov Gamma GOF Test

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	77.98	k star (bias corrected MLE)	76.58
Theta hat (MLE)	9.585	Theta star (bias corrected MLE)	9.76
nu hat (MLE)	26044	nu star (bias corrected)	25577
MLE Mean (bias corrected)	747.4	MLE Sd (bias corrected)	85.41

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	893.7	90% Percentile	858.7
95% Hawkins Wixley (HW) Approx. Gamma UPL	894.6	95% Percentile	893.2
95% WH Approx. Gamma UTL with 95% Coverage	912.6	99% Percentile	960.3
95% HW Approx. Gamma UTL with 95% Coverage	913.9		
95% WH USL	1068	95% HW USL	1074

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.977	Shapiro Wilk Lognormal GOF Test
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Attachment 7: Statistical Calculations

5% Shapiro Wilk P Value	0.2	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0614	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.069	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	918.1	90% Percentile (z)	859.8
95% UPL (t)	897.8	95% Percentile (z)	896.3
95% USL	1093	99% Percentile (z)	968.9

Nonparametric Distribution Free Background Statistics

Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	163	95% UTL with 95% Coverage	937
Approx, f used to compute achieved CC	1.716	Approximate Actual Confidence Coefficient achieved by UTL	0.924
		Approximate Sample Size needed to achieve specified CC	181
95% Percentile Bootstrap UTL with 95% Coverage	932.8	95% BCA Bootstrap UTL with 95% Coverage	930.4
95% UPL	900.4	90% Percentile	844
90% Chebyshev UPL	1001	95% Percentile	883
95% Chebyshev UPL	1116	99% Percentile	952.5
95% USL	998		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (upper chinle non-mixing zone total dissolved solids)

General Statistics

Total Number of Observations	166	Number of Distinct Observations	98
Minimum	920	First Quartile	1463
Second Largest	2140	Median	1550
Maximum	2160	Third Quartile	1779
Mean	1613	SD	221.7
Coefficient of Variation	0.137	Skewness	0.532
Mean of logged Data	7.377	SD of logged Data	0.136

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.856	d2max (for USL)	3.375
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Normal GOF Test

Shapiro Wilk Test Statistic	0.932	Normal GOF Test
5% Shapiro Wilk P Value	2.3328E-9	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.173	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0692	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

Attachment 7: Statistical Calculations

95% UTL with 95% Coverage	2024	90% Percentile (z)	1897
95% UPL (t)	1981	95% Percentile (z)	1977
95% USL	2361	99% Percentile (z)	2129

Gamma GOF Test

A-D Test Statistic	3.824	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.75	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.157	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.0722	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	54.49	k star (bias corrected MLE)	53.51
Theta hat (MLE)	29.6	Theta star (bias corrected MLE)	30.14
nu hat (MLE)	18091	nu star (bias corrected)	17766
MLE Mean (bias corrected)	1613	MLE Sd (bias corrected)	220.5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1993	90% Percentile	1901
95% Hawkins Wixley (HW) Approx. Gamma UPL	1995	95% Percentile	1992
95% WH Approx. Gamma UTL with 95% Coverage	2043	99% Percentile	2170
95% HW Approx. Gamma UTL with 95% Coverage	2046		
95% WH USL	2458	95% HW USL	2474

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.948	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	8.6352E-6	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.149	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.0692	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	2056	90% Percentile (z)	1902
95% UPL (t)	2002	95% Percentile (z)	1998
95% USL	2527	99% Percentile (z)	2192

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	162	95% UTL with 95% Coverage	2130
Approx, f used to compute achieved CC	1.705	Approximate Actual Confidence Coefficient achieved by UTL	0.922
		Approximate Sample Size needed to achieve specified CC	181
95% Percentile Bootstrap UTL with 95% Coverage	2120	95% BCA Bootstrap UTL with 95% Coverage	2080
95% UPL	2018	90% Percentile	1931
90% Chebyshev UPL	2280	95% Percentile	2010
95% Chebyshev UPL	2582	99% Percentile	2140
95% USL	2160		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers

and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (upper chinle non-mixing zone uranium)

General Statistics			
Total Number of Observations	166	Number of Missing Observations	0
Number of Distinct Observations	78		
Number of Detects	140	Number of Non-Detects	26
Number of Distinct Detects	77	Number of Distinct Non-Detects	2
Minimum Detect	7.0000E-4	Minimum Non-Detect	0.00848
Maximum Detect	0.361	Maximum Non-Detect	0.01
Variance Detected	0.00152	Percent Non-Detects	15.66%
Mean Detected	0.0361	SD Detected	0.039
Mean of Detected Logged Data	-3.68	SD of Detected Logged Data	0.893

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.856	d2max (for USL)	3.375
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.63
5% Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.235
5% Lilliefors Critical Value	0.0753

Normal GOF Test on Detected Observations Only

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.031	KM SD	0.0376
95% UTL95% Coverage	0.101	95% KM UPL (t)	0.0934
90% KM Percentile (z)	0.0792	95% KM Percentile (z)	0.0928
99% KM Percentile (z)	0.118	95% KM USL	0.158

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0311	SD	0.0376
95% UTL95% Coverage	0.101	95% UPL (t)	0.0935
90% Percentile (z)	0.0793	95% Percentile (z)	0.093
99% Percentile (z)	0.119	95% USL	0.158

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.388
5% A-D Critical Value	0.77
K-S Test Statistic	0.135
5% K-S Critical Value	0.0806

Anderson-Darling GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov GOF

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.543	k star (bias corrected MLE)	1.515
Theta hat (MLE)	0.0234	Theta star (bias corrected MLE)	0.0238
nu hat (MLE)	432.1	nu star (bias corrected)	424.2

Attachment 7: Statistical Calculations

MLE Mean (bias corrected)	0.0361		
MLE Sd (bias corrected)	0.0293	95% Percentile of Chisquare (2kstar)	7.866

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	7.0000E-4	Mean	0.032
Maximum	0.361	Median	0.0252
SD	0.037	CV	1.158
k hat (MLE)	1.451	k star (bias corrected MLE)	1.429
Theta hat (MLE)	0.022	Theta star (bias corrected MLE)	0.0224
nu hat (MLE)	481.9	nu star (bias corrected)	474.5
MLE Mean (bias corrected)	0.032	MLE Sd (bias corrected)	0.0268
95% Percentile of Chisquare (2kstar)	7.568	90% Percentile	0.0674
95% Percentile	0.0847	99% Percentile	0.124

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0924	0.0946	95% Approx. Gamma UPL	0.0824	0.0835
95% Gamma USL	0.199	0.222			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.031	SD (KM)	0.0376
Variance (KM)	0.00141	SE of Mean (KM)	0.00293
k hat (KM)	0.682	k star (KM)	0.674
nu hat (KM)	226.5	nu star (KM)	223.8
theta hat (KM)	0.0455	theta star (KM)	0.046
80% gamma percentile (KM)	0.0511	90% gamma percentile (KM)	0.0786
95% gamma percentile (KM)	0.107	99% gamma percentile (KM)	0.175

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.0998	0.105	95% Approx. Gamma UPL	0.0879	0.0914
95% KM Gamma Percentile	0.087	0.0905	95% Gamma USL	0.231	0.274

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.954	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	5.7256E-4	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.134	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0753	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0313	Mean in Log Scale	-3.93
SD in Original Scale	0.0375	SD in Log Scale	1.017
95% UTL95% Coverage	0.13	95% BCA UTL95% Coverage	0.117
95% Bootstrap (%) UTL95% Coverage	0.121	95% UPL (t)	0.106

Attachment 7: Statistical Calculations

90% Percentile (z)	0.0724	95% Percentile (z)	0.105
99% Percentile (z)	0.21	95% USL	0.609

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-4.001	95% KM UTL (Lognormal)95% Coverage	0.151
KM SD of Logged Data	1.138	95% KM UPL (Lognormal)	0.121
95% KM Percentile Lognormal (z)	0.119	95% KM USL (Lognormal)	0.853

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0311	Mean in Log Scale	-3.948
SD in Original Scale	0.0376	SD in Log Scale	1.03
95% UTL95% Coverage	0.13	95% UPL (t)	0.107
90% Percentile (z)	0.0722	95% Percentile (z)	0.105
99% Percentile (z)	0.212	95% USL	0.624

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	162	95% UTL with95% Coverage	0.124
Approx, f used to compute achieved CC	1.705	Approximate Actual Confidence Coefficient achieved by UTL	0.922
Approximate Sample Size needed to achieve specified CC	181	95% UPL	0.0946
95% USL	0.361	95% KM Chebyshev UPL	0.195

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.

Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.